U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL WEATHER SERVICE NATIONAL METEOROLOGICAL CENTER

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# OFFICE NOTE 124

# NMC Format for Synoptic Reports

### Automation Division Staff

JUNE 1976

This Office Note describes the format for surface synoptic reports in the NMC observational files. The basic format adheres to that described in Office Note #29 (September 1969, revised September 1973) with added provisions for accommodating additional parameters, primarily by the use of Category 8, and plain language by the use of Category 9. No significant changes in Categories 51 and 52 have been made.

Information contained in the NMC observational surface synoptic reports consists of combinations from the FORTRAN character set listed below:

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z 0 1 2 3 4 5 6 7 8 9 and

Character

\*

1

Ś

Name of Character

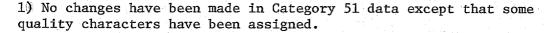
Blank (space) Minus Asterisk Slash Currency Symbol

A report is composed of two main parts. (1) the report identification group of fixed length (50 characters), and (2) the bookkeeping and observational data of variable length. Each report consists of 70 characters or more.

The information contained in the report identification group is given in APPENDIX S.1. The last parameter in this group contains the total number of ten-character words in the report and thus provides the linkage from one report to the next so that several reports may be blocked into a record. The report identification group is followed by the category/counter and observational data groups as needed. The observational data is formatted according to the categories described in APPENDIX S.2. The format of the category/counter groups is described in APPENDIX S.1. Where no data of a given category exist, the category/counter group as well as the data will be absent from the report. The final group in a report contains the ten characters "END REPORT". The number of characters in each category of data is evenly divisible by 10 and the character "X" is used as fill if necessary. Because of this and the length of the groups, the number of characters in the entire report (including the END REPORT) is also evenly divisible by 10.

A negative value is indicated by a minus (-) sign located in the leftmost position. A positive value is unsigned.

The requirement for revision is to expand the capability for formatting more parameters of surface reports. Even though there is some awkwardness in doing this with the Office Note 29 formatting scheme, it appears to be more expedient to implement operationally the changes this way than to completely revamp the formats of surface parameters. Programming considerations that may be of interest are as follows:



2) Water equivalent of snow and/or ice has replaced the previously reserved 7-character group in Category 52.

3) Except for Category 51, parameters from all reports are not handled identically because of the myriad of reporting procedures. For stations in blocks 70 through 74 precipitation, snow depth, and water equivalent appear in Category 52, and for other stations, these parameters appear as entries in Category 08.

4) The number of characters per report is variable and for some reports, especially blocks 70 - 74, also is greater than previously.

5) Programmers may continue to use unpacker W3AIØ2; but should allow for additional array space to hold an unpacked report.

6) Programmers desiring to use the Category 09 entries by means of W3AIØ2 should insure they are using a current version of that subroutine.

7) The current versions in W3LIB.LOAD of W3AIØ1, W3AIØ2, and W3AI17 handle the Category 09 format.

8) In order to attain flexibility for adding new report types and/or new categories of data, programs should be written so that these additions will not necessitate reprogramming. Of course, to utilize the additional data, programming would be needed. This can be done simply by providing checks to ascertain if the report type and/or category can be handled. If not, the report or category should be bypassed, pending changes needed to utilize the data if desired.

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APPENDIX S.4

#### Code Tables for Synoptic Reports:

Code	Tab1	e 1	14
. 11	<u>т</u> . П.	3	14
.11	an san Si Si sa Si	4	15
- 11 - 1 	11	5	18
41 ***	ала <mark>н</mark> (1	8 ••••••••••	18
11	11	9 • • • • • • • • • • • • • • • • • • •	19
	н	10	19
	11	11	20
11		12 ••••••••••••••••••••••••••••••••••••	21
11	1) 11	14 ••••••••••••••••••••••••••••••••••	22
11		16	22
		18	22
11	11	19 ••••••••••••••••••••••••••••••••••••	22
11		20 · · · · · · · · · · · · · · · · · · ·	23 24
ŤI.	n	· 북국 남한 이가 이유 이곳 이가 한 것을 가장 이지는 것이 이가 있었다. 것은 이가 이가 한 것을 하는 것이 같다.	24 25
11	11	· 북북 · · 그리 가슴 같은 동안은 가슴이 가슴이 다시 가슴이 있다. 이 가슴 가슴 것 가슴 것 같아요	25
	11	22a-i	28
ų.	11	23 ·····	28

#### WMO Code Tables

			· · · ·				1.001	64 (J. 1997) (J. 1997)	
Code	Table	0663 •	• • (• •	 				• • •	 28
11	11	0700 .		 • • • •					 29
11		0739 ·							
		1000 .							
. IT	π	2100 .		 	· • • • • • •	· • • • •	• • • •		 28
	Π	3600 •		 • • • •		••••	• • • •		 29
TT	11	4451 ·							

Code Tables 1\*, 3, 4, 5, 8\*, 9\*, 10\*, 11\*, 12, 14, 16, 18, 19, 20, 21, 22, 22a-i, 23\*\*, 24\*, and WMO Code Tables 0663, 0700, 0739, 1000, 2100, 3600, and 4451 have been taken from <u>Federal Meteorological Handbook</u> No.2, Synoptic Code (Standards and Procedures for the Coding of Synoptic Reports), January 1, 1969.

\*This table originally is an 11-character code (0, 1, 2, 3, 4, 5, 6, 7, 8, 9, /). However, the code figure 10 has been used whenever "/" appeared in the original version.

\*\* Code figure 98 has been substituted where 99 appeared in original version.

Character Number(s)	Parameter	Unit	Remarks
1- 5	Latitude*	Hundredths of degree	Negative in S. H.
6-10	West longitude*	Hundredths of degree	Values 00000 to 35999
11–16	Station identification	Alphanumeric	Left aligned, blank fill
17–20	Observation time*	Hundredths of hour	Values 0000 to 2399
21–24	Receipt time*	Hundredths of hour	Values 0000 to 2399
25–27	Reserved		
28–30	Report type	Code figure from Table SM.1	Integer
31–35	Station elevation*	Meter	Negative if below sea level
36-37	Reserved*		
38–40	Total length of report	10-character words	
	value is "missing" or meter will contain "9"	not applicable, all charact.	ters for
	CATEGORY/COU	NTER GROUP (10 Characters)	
Character Number(s)		Parameter	
41-42 43-45 46-47 48-50	Relative positi category/count Number of times repeated (i.e. Total number of	igure from APPENDIX S.3. on in report of the next er group.* data format for category is , the number of entries) characters in current cates rs not counted)	

# REPORT IDENTIFICATION (50 Characters)



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### APPENDIX S.2

# Category 51 - Surface data (60 characters each entry)

No. of characters	Parameter	Unit
5	Sea-level pressure*	Tenth of millibar
5 3 3 4	Station pressure**	1 II
3	Wind direction	Degree
3	Wind speed	Knot
	Air temperature	Tenth of degree C
3	Dewpoint depression	TT TT TT TT
4	Maximum temperature	TT TT TT TT
4	Minimum temperature	
1, i i i i i i i i i i i i i i i i i i i	Quality mark for sea-level pressure	Character from Table SM.51
1	Quality mark for station pressure	H H H
1	Quality mark for wind	11 11 1T 11
1	Quality mark for air temperature	11 11 11 11 11 11 11 11 11 11 11 11 11
1	Quality mark for depression	11 11 11 11
3	Horizontal visibility	Code figure from Code Table 3
3	Present weather	Code figure from Code
2	Past weather	Table 4
4	rast weather	Code figure from Code
2	Fraction of the celestial dome	Table 5
4	covered by cloud (N)	Code figure from Code Table 1
2	Fraction of the celestial dome	Code figure from Code
<u> </u>	covered by all the $C_L$ (or $C_M$ )	Table 1
	cloud present $(N_h)$	
2	Clouds of genera Sc, St, Cu, Cb ( $C_L$ )	Code figure from Code Table 8
2	Height above ground of the base of	Code figure from Code
-	the cloud (h)	Table 9
2	Clouds of genera Ac, As, Ns $(C_M)$	Code figure from Code
		Table 10
2	Clouds of genera Ci, Cc, Cs (C $_{ m H}$ )	Code figure from Code
1	Characteristic of pressure tendency	Table 11 Code figure from Code
±	during the 3 hours preceding the	Code figure from Code Table 12
	time of observation (a)**	Tante Ta
3	Amount (magnitude) of the pressure	Tenth of millibar or
	tendency**	Code figure from
		Table 14
		TUNTE TL

\*See note on following page.

\*\*See note on following page.

\*\*\*When the characteristic of pressure tendency is 9 and the amount of the pressure tendency is not 999, the tendency is a 24-hour pressure change code figure from Code Table 14.

\* Reference Category 51, <u>sea-level pressure (PPPPP)</u>, the following information describes the method for also accommodating the possible values encoded in the sea-level pressure entry (PPP) in the pressuretemperature group (PPPTT).

Characters	<u>Level</u>	Unit
PPPPP	sea-level	tenth of millibar
20PPP	reserved	
21PPP	1000 gpm	tenth of millibar
22PPP	2000 gpm	tenth of millibar
23PPP	500 gpm	tenth of millibar
24PPP	3000 gpm	tenth of millibar
25PPP	500 mb	geopotential meter (gpm)
26PPP	station	tenth of millibar
27PPP	700 mb	geopotential meter
28PPP	850 mb	geopotential meter
29PPP	unknown	(as reported)
99999	missing	

\*\* Reference Category 51, station pressure  $(P_0P_0P_0P_0P_0P_0)$ , the following information describes the method for also accommodating the possible values encoded in the sea-level pressure entry (PPP) in the pressure-temperature group (PPPTT).

Characters	<u>Level</u>	Unit	
PoPoPoPoPo	station	tenth of millibar	
20PPP	reserved		
21PPP	1000 gpm	tenth of millibar	
22PPP	2000 gpm	tenth of millibar	
23PPP	500 gpm	tenth of millibar	
24PPP	3000 gpm	tenth of millibar	1.1
25PPP	500 mb	geopotential meter	(gpm)
26PPP	station	tenth of millibar	
27PPP	700 mb	geopotential meter	
28PPP	850 mb	geopotential meter	· · · · · · · · · · · · · · · · · · ·
29PPP	unknown	(as reported)	
99999	missing		

# Category 52 - Surface data (40 characters each entry)

No. of characters	Parameter	Unit
h ji ka sahiji n		
4	Amount of precipitation past 6 hours*	Hundredth of an inch
3	Total depth of snow on ground**	Inch
4	Total precipitation past 24 hours*	Hundredth of an inch
1	Time precipitation began or ended	Code figure from Code Table 16
2	Period of waves***	Second
2	Height of waves	Half (1-1/2 feet)
2	Direction from which swell waves are moving	Code figure from Code Table 23
2	Period of swell waves	Code figure from Table 24
2	Height of swell waves	Half yard (1-1/2 feet)
4	Sea surface temperature	Tenth of degree C
2	Special phenomena, general****	Code figure from Code Table 21
2	Special phenomena, detailed****	Code figure from Code Table 22
1	Ship's course	Code figure from Code Table 0700
2	Ship's average speed	Code figure from Code Table 4451
7	Water equivalent of snow and/or ice	Hundredth of an inch

\* Trace is output as 9998.
\*\* Trace is output as 998.
\*\*\* No estimate due to confused sea--output as 98.
\*\*\*\* Special phenomena, general, is missing (99) only if special phenomena, detailed, is missing (99).



Category 08 -- Additional Data (10 characters each entry)

No. of characters	Parameter	Unit
5	Data given by specification in Table SM.8a*	Variable
3	Form of data	Code figure from Table SM.8a
1	Indicator for specification	Character from Table SM.8b
1	Indicator for form	Character from Table SM.8c

Note--Entries will be ordered as encountered in report.

\*Value set "missing" (99999) indicates transmitted as missing.

# Category 09 -- Plain Language Data (12 characters each entry)

No. of characters	Parameter	Unit
1	Indicator of content of the plain language	Character from Table SM.9
11	Plain language data	Alphanumeric text

# APPENDIX S.3

	TABLE SM.1REPORT TYPE (3 Characters)
Code Figure	Type of report
511 512 513	Land station By internationl index number By call letters By latitude-longtitude
521 522 523	Ocean station Fixed (Stationary OSV) Moving ship with name Moving ship without name
531 532	Marine reporting station (MARS) Fixed (Stationary) Moving
551	Monitoring (manual) bogus By latitude-longtitude Buoy
561 562	Fixed (Stationary) Moving

TABLE SM.8a - Code figures and specifications for Category 08 Code Figure Specification 014 Station international index number. .iiiii Altimeter setting in 10ths of mb. Optional group with 0 indicator . 020 . PPPPP 100 .OXXXX 101 1 .1XXXX tE 11 102 11 234567891 11 .2XXXX 103 104 11 11 11 11 3XXXX 11 Ħ  $\mathbf{t}$ 11 4XXXX 105 11 11 Ħ 11 5XXXX 106 11 11 11 12 .6XXXX 107 tt U. tt: 11 7XXXX 108 tt th 11 11 8XXXX 11 11 11 109 tt .9XXXX 110 11: H. 11 H. .OXXXX 120 Ice data group. .c<sub>2</sub>KD<sub>i</sub>re .

3/23/77

Definitions of symbols used in Table SM.8

11111	5-digit international index number.
PPPPP	Pressure of altimeter setting in tenths of millibars.
XXXX	4-digit group associated with the indicator. Consult WMO Code manual for meanings (No. 306, Vol. I and II).
c <sub>2</sub>	Kind of ice. See Code Table 0663.
K	Effect on navigation. See Code Table 2100.
Di	Bearing of ice edge. See Code Table 0739.
r	Distance to ice edge. See Code Table 3600.
е	Orientation of ice edge. See Code Table 1000,

	-			
1				
				1.0
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1			-	
1			,	
		-		

# TABLE SM.8b - Indicator for specification

Character	Meaning		
		 <u></u>	
blank (space)	Not specified		

Character	Meaning	
blank (space)	Not specified	
	4-digits transmitted	4-digit output
0*	XXXX	XXXX
	xxx/	XXX9
2 <sup>*</sup>	xx/x	XX9X
3*	XX//	XX99
4* 5* 6* 7*	x/xx	X9XX
5 <sup>*</sup>	x/x/	X9X9
6 <sup>*</sup>	x//x	X99X
7*	x///	X999
8*	/xxx	9xxx
9 <sup>*</sup>	/xx/	9XX9
8* 9* A* B C* D* E* F*	/x/x	9x9x
B	/x//	9X99
C <sup>*</sup>	//xx	99XX
D	//x/	99X9
E^	$1/1 \times 10^{-11}$	999x
F	1111	9999

\* Applies only to code figures 100 through 120.

# TABLE SM.9 - Content of plain language data

Character	Content
1	Remarks section from SA (hourly) report
2	Plain language "ICE" reportICE AAA
3	"CITY" reportCITY $T_x T_x T_n T_n TT R_{24}R_{24}R_{24}R_{24}$
4	Miscellaneous undecoded "fragments"

Definition of symbols in TABLE SM.9

AAA	- Characters as transmitted in report
$T_{x}T_{x}$	<ul> <li>Code figures for maximum temperature (currently in degrees Fahrenheit)</li> </ul>
Tn <b>T</b> n	<ul> <li>Code figures for minimum temperature (currently in degrees Fahrenheit)</li> </ul>
TT	<ul> <li>Code figures for current temperature (currently in degrees Fahrenheit)</li> </ul>
R24R24R24R24	- Code figures for 24-hour precipitation (currently in hundredths of inches)



TAB	LE SM.51 - Markers for parameters
Character	Meaning
blank (space)	Not specified
Α	Ship wind measured using anemometer
$\mathbf{H}$ . The second se	Monitor requests retention of parameter
P	Monitor requests non-use of parameter

Sample Reports to Illustrate Formats

--Typical for land station from blocks 70-74. --Typical for land station other than blocks 70-74. --Typical "converted hourly" (SA). --Typical moving ship (without name).

070950086701001 00000016999511000099901551012010601007399999360034-0900409999999 005085080909101010102017080150202070299107 391498109 2END REPORT

O+950000205HIP 12009999999523999999017510120106010352999990400020070039999999 9 A 0980020205000009000570025201701040999999999999990000010502006799990009999999 END REPORT



### Code Table 1

### [WMO Code 2700]

Symbol	N=Fraction of th	ne Celestial	Dome
	Covered by Cle	oud	

- Symbol  $N_h$ =Fraction of the Celestial Dome Covered by All the  $C_L$  (or  $C_M$ ) Cloud present
- Symbol N<sub>s</sub>=Fraction of the Celestial Dome Covered by an Individual Cloud Layer or Mass

Code Figure		Fraction Covered in Oktas
0	Zero	Zero
1	1 or less but not zero	1 Okta or less but not
		zero
2	2 and 3	2
3	4	3
4	5	4
5	6	5
6	7 and 8	6
7	9 or more, but not 10	7 or more, but not 8
8	10	8
9	Celestial dome obscured not be estimated.	d, or cloud amount can
-10	/ was encoded	

# WMO Code Table 4451

Code Figure	Nautical Miles Per Hour	Kilometers Per Hour
<u> </u>		
. 0	0 nm/hr	0 km/hr.
1	1–5 nm/hr	1-10 km/hr.
<b>2</b>	6-10 nm/hr	11–19 km/hr.
3	11–15 nm/hr	20–28 km/hr.
4	16-20 nm/hr	29–37 km/hr.
5	21–25 nm/hr	38–47 km/hr.
6	26-30 nm/hr	48–56 km/hr.
7	31–35 nm/hr	57-65 km/hr.
8	36-40 nm/hr	66–75 km/hr.
9	Over 40 nm/hr	Over 75 km/hr.
		<u>na in an ann an a</u>

### **Code Table 3**

[WMO Code 4377]

# Symbol VV—Horizontal Visibility

Code Fig- ure	Statute Miles	Yards	Kilometers
00	Less than $\frac{1}{16}$	Less than	Less than 0.1.
10	,	110.	
01	1/16	110	0.1
02	1/8	220	0.2
03	3/16	330	0.3
04	1/4	440	0.4
05	5/16	550	0.5
06	3/8	660	0.6
07	7/16	770	0.7
08	1/2	880	0.8
09	9⁄16	990	0.9
10	5/8	1, 100	1.0
11	11/16	1, 210	1.1
12	3/4	1, 320	1.2
13	13/16	1,430	1.3
14	78	1, 540	1.4
15	15/16	1,650	1.5
16	1	1, 760	1.6
17	11/16	1, 870	1.7
18	1½	1, 980	1.8
19	$1_{16}^{3}$	2,090	1.9
20	11/4	2, 200	2.0
21	15/16	2, 310	2.1
22	13/8	2, 420	2.2
23	17/16	2, 530	2.3
24	1½	2,640	2.4
25	1%6	2,750	2.5
26	1%	2,860	2.6
27	111/16	2,970	2.7
28	13⁄4	3, 080	2.8
29	113/16	3, 190	2.9
30	1%	3, 300	3.0
31	115/16	3, 410	3.1
32	2	3, 520	3.2
33	$2\frac{1}{16}$	3, 630	3.3
34	21/8	3,740	3.4
35	$2\frac{3}{16}$	3,850	3.5
36	21/4	3, 960	3.6
37	25/16	4,070	3.7
38	2%	4, 180	3.8
39	27/16	4, 290	3.9
40	2½	4, 400	4.0
41	2%16	4, 510	4.1
42	25%	4, 620	4.2
43	211/16	4,730	4.3
44	2¾	4,840	4.4
<b>45</b>	$2^{13}/_{16}$	4,950	4.5
46	21%	5,060	4.6
47	215/16	5, 170	4.7
48	3	5, 280	4.8
49	31/16	5, 390	4.9
50	31/8	5, 500	5.0
51	Not specified.		
52	Not specified.		
53	Not specified.		la de la companya de La companya de la comp
			and the second

Kilometers

### **Code Table 3—Continued**

Yards

**Code Table 4** 

#### [WMO Code 4677]

#### Symbol ww=Present Weather

No precipitation at the station at the time 00-49: of observation.

No precipitation, fog, ice fog (except for 11 00-19: duststorm, drifting or blowing snow at the 12 hre id

	and 12), duststorm, drifting or blowing snow at th station at the time of observation or, except for 09 an
	17, during the preceding hour.
	<ul> <li>Cloud development not ob- served or not observable.</li> <li>Clouds generally dissolving or becoming less developed.</li> <li>State of sky on the whole un- changed.</li> <li>Clouds generally forming or developing.</li> </ul>
	(04 Visibility reduced by smoke, e.g., veldt or fores
	fires, industrial smoke or volcanic ashes.
	05 Haze. 06 Widespread dust in suspension in the air, no
	raised by wind at or near the station at th
	time of observation.
	<b>b</b> 07 Dust or sand raised by wind at or near the station at the time of observation, but no we
	developed dust whirl(s) or sand whirl(s), an
	no duststorm or sandstorm seen: or, in th
	case of ships, blowing spray at the station.
	<ul> <li>a constraint of the station at the station at the time of observation.</li> <li>b constraint of the station at the time of observation, but no we developed dust whirl(s) or sand whirl(s), an no duststorm or sandstorm seen: or, in the case of ships, blowing spray at the station.</li> <li>c constraint of station during the precedent of the station at the time of observation, but no we developed dust whirl(s) or sand whirl(s) an no duststorm or sandstorm seen: or, in the case of ships, blowing spray at the station.</li> <li>c constraint of the station during the precedent of the station during the precedent of the station.</li> </ul>
	seen at or near the station during the preced
	ing hour, or at the time of observation, bu
	no duststorm or sandstorm.
	09 Duststorm or sandstorm within sight at th
1.1	time of observation or at station during th
All Car	prèceding hour.
	10 Light fog. (Vis. 1,100 yds. or more.)
	(shallow fog or ice fog at the station
an	11 Patches of 12 More or less than about 6 feet on land or 3
50	continuous feet at sea. (Apparent vis. les than 1,100 yds.)
	13 Lightning visible, no thunder heard.
	14 Precipitation within sight, but not reaching th
	ground or the surface of the sea.
	15 Precipitation within sight, reaching the ground of
	the surface of the sea, but distant (i.e., est
	mated to be more than 3.1 miles) from the station

16 Precipitation within sight, reaching the ground or the surface of the sea near to but not at the station.

Squalls at or within sight of the station during the 18 preceding hour or at the time of observation.

19

Funnel cloud(s) (i.e., tornado cloud or waterspout) at or within sight of the station during the preceding hour or at the time of observation.

EFFECTIVE JAN. 1, 1969

55       Not specified.       6, 600       6         57 $4\frac{3}{4}$	04	Tion sheemed.		
56 $3\frac{3}{4}$ 6, 600       7         57 $4\frac{3}{6}$ 7, 700       7         58       5       etc       8         59 $5\frac{3}{4}$ 9       9         60 $6\frac{3}{4}$ 10       10         61 $6\frac{3}{4}$ 11       16         62 $7\frac{3}{4}$ 12       13         63 $8\frac{1}{4}$ 14       15         66       10       16       17         63 $8\frac{1}{4}$ 14       19         64 $8\frac{3}{4}$ 14       18         65 $9\frac{4}{4}$ 17       18         66       10       17       18         69 $11\frac{3}{4}$ 21       19         70 $12\frac{1}{2}$ 22       23         74 $15$ 24       25         75 $15\frac{1}{8}$ 21       22         73 $14\frac{1}{2}$ 22       23         74 $15$ 24       27         78 $17\frac{1}{2}$ 28       29         80 $18\frac{1}{4}$ 30 <td< th=""><th>55</th><th>Not specified.</th><th></th><th>한 사람은 것이 없는 것이 없다.</th></td<>	55	Not specified.		한 사람은 것이 없는 것이 없다.
57 $4\frac{3}{4}$ 7, 700       7         58       5	56		6,600	6
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		49/		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$				
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	58	5	etc	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	59	5%		9
$61$ $67_{4}$ $11$ $62$ $71_{4}$ $12$ $63$ $81_{4}$ $13$ $64$ $83_{4}$ $14$ $65$ $93_{6}$ $15$ $66$ $10$ $16$ $67$ $105_{6}$ $17$ $68$ $114_{4}$ $18$ $69$ $117_{4}$ $18$ $69$ $117_{4}$ $19$ $70$ $123_{4}$ $20$ $71$ $134_{6}$ $21$ $72$ $133_{4}$ $22$ $73$ $143_{6}$ $22$ $73$ $143_{6}$ $22$ $73$ $143_{6}$ $22$ $73$ $143_{6}$ $22$ $73$ $143_{6}$ $23$ $74$ $15$ $24$ $75$ $155_{6}$ $25$ $76$ $163_{4}$ $27$ $78$ $174_{6}$ $30$ $81$ $217_{6}$ $35$ $82$ $25_{6}$ $55$ $86$	60			10
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1 A. 1			11
63 $8\frac{1}{4}$ 13         64 $8\frac{3}{4}$ 14         65 $9\frac{3}{4}$ 15         66       10       16         67 $10\frac{3}{4}$ 17         68 $11\frac{4}{4}$ 18         69 $11\frac{4}{4}$ 18         69 $11\frac{4}{4}$ 19         70 $12\frac{1}{4}$ 20         71 $13\frac{1}{4}$ 21         72 $13\frac{1}{4}$ 22         73 $14\frac{1}{4}$ 23         74       15       24         75 $15\frac{1}{4}$ 26         77 $16\frac{1}{4}$ 26         77 $16\frac{1}{4}$ 26         77 $16\frac{1}{4}$ 28         79 $18\frac{1}{4}$ 28         79 $18\frac{1}{4}$ 30         81 $21\frac{1}{4}$ 30         82 $25$ 40         83 $28\frac{1}{4}$ 50         84 $31\frac{1}{4}$ 50         85 $34\frac{3}{4}$ 70         90				
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1.1.1			- 7 T
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	63	81/8		レート うんしょう かかしょう アイレス
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	64	8¾		· 14
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	65	9%		15
$\begin{array}{cccccccccccccccccccccccccccccccccccc$			$\mathbf{N}$	16
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				
$\begin{array}{cccccccccccccccccccccccccccccccccccc$				
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	68	111/4		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	69	111/8		<b>\19</b>
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	70	121/2		20
$\begin{array}{cccccccccccccccccccccccccccccccccccc$				
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1 A A			$\mathbf{X}$
$\begin{array}{cccccccccccccccccccccccccccccccccccc$				
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	73	14%		
$76$ $16\frac{1}{34}$ $26$ $77$ $16\frac{1}{34}$ $27$ $78$ $17\frac{1}{2}$ $28$ $79$ $18\frac{1}{34}$ $29$ $80$ $18\frac{1}{34}$ $30$ $81$ $21\frac{1}{8}$ $35$ $82$ $25$ $40$ $83$ $28\frac{1}{8}$ $35$ $82$ $25$ $40$ $83$ $28\frac{1}{8}$ $35$ $82$ $25$ $40$ $83$ $28\frac{1}{8}$ $35$ $84$ $31\frac{1}{4}$ $50$ $85$ $34\frac{3}{8}$ $55$ $86$ $37\frac{1}{2}$ $60$ $87$ $40\frac{5}{6}$ $70$ $89$ Greater than $70$ $90$ $\frac{550}{14}$ $500$ m. $91$ $\frac{550}{14}$ $500$ m. $92$ $\frac{1}{8}$ $500$ m. $94$ $\frac{9}{8}$ $\frac{1}{10}$ $20$ $98$ $12\frac{1}{2}$ $20$ $4$	74	15		24
$76$ $16\frac{1}{34}$ $26$ $77$ $16\frac{1}{34}$ $27$ $78$ $17\frac{1}{2}$ $28$ $79$ $18\frac{1}{34}$ $29$ $80$ $18\frac{1}{34}$ $30$ $81$ $21\frac{1}{8}$ $35$ $82$ $25$ $40$ $83$ $28\frac{1}{8}$ $35$ $82$ $25$ $40$ $83$ $28\frac{1}{8}$ $35$ $82$ $25$ $40$ $83$ $28\frac{1}{8}$ $35$ $84$ $31\frac{1}{4}$ $50$ $85$ $34\frac{3}{8}$ $55$ $86$ $37\frac{1}{2}$ $60$ $87$ $40\frac{5}{6}$ $70$ $89$ Greater than $70$ $90$ $\frac{550}{14}$ $500$ m. $91$ $\frac{550}{14}$ $500$ m. $92$ $\frac{1}{8}$ $500$ m. $94$ $\frac{9}{8}$ $\frac{1}{10}$ $20$ $98$ $12\frac{1}{2}$ $20$ $4$	75	15%		25
$\begin{array}{cccccccccccccccccccccccccccccccccccc$				
$\begin{array}{cccccccccccccccccccccccccccccccccccc$				그는 그는 것 같아요. 그는 것 같아요.
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	[77]			그는 것은 것 같은 것 같아요. 이 같이 많이 있는 것
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	78	17½	دمد خد خوب مرج عرب ا	28
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	79	181/8		29
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	10.1			30
$\begin{array}{cccccccccccccccccccccccccccccccccccc$				그는 아이는 것 같아. 그 말에 많다는 것이다.
$\begin{array}{cccccccccccccccccccccccccccccccccccc$			[14] M.	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	82	25		40
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	83	281/8		45
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	84	311/		50
$\begin{array}{cccccccccccccccccccccccccccccccccccc$				
$\begin{array}{cccccccccccccccccccccccccccccccccccc$				
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	87	40%		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	88	43%		70 /
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		Greater than		Greater than
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				70.
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	00		Tora than 55	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	90 <sub>.2</sub>		Less man 55-	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	91		55	/ 50 m.
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	92	1/8	220	200 m.
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				500 m.
$\begin{array}{cccccccccccccccccccccccccccccccccccc$			1 100	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1.1.1		1,100	<ul> <li>The second s second second se second second s</li></ul>
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	95	11/4	2,200_/	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	96	21/2	4,400/	4
98 12 $\frac{1}{2}$		1 1 1		10
			1 7 6	
99   31¼ or more   - /   50 or more.				승규 관계 가지 않는 것 같아. 생각
n n Marazzi na Sul Kasara ya su di Sul Kasara	99	$31\frac{1}{4}$ or more		ou or more.
그는 것 같은 것 같		<u>I. Secondaria de la composición de</u>		

NOTES:

(1) The values given are discrete values (i.e., not ranges). If the observed visibility is between two of the reportable distances as given in the table, the code figure of the lower reportable distance shall be reported. (2) Only the code figures 00-89 shall be used in reports from land stations.

(3) In reporting visibility at sea the decade 90-99 shall be used.

#### FMH No. 2

Code

Fig-

ure

54

Statute Miles

Not specified.

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- he ell nd he
- (s) dùt
- he ĥe
- n, er 33 ss
- he
- or timated to be more than 3.1 miles) from the station.

Thunderstorm, but no precipitation at the time of 17 observation.

# Code Table 3-Continued

**Code Table 4** 

Fig-	Statute Miles	Yards	Kilometers	Symbol ww=Present Weather
54	Not specified.			00-49: No precipitation at the station at the tim
55	Not specified.	والمرتب والمسترك المستنا المتشرق		of observation.
56	3¾		6	00-19: No precipitation, fog, ice fog (except for 1
57	43%	7,700	7	and 12), duststorm, drifting or blowing snow at th
58	5		8	station at the time of observation or, except for 09 and
59			9	17, during the preceding hour.
60				17, auting the preceating hoar.
61	67/		10 11	(00 Cloud development not ob-)
62	0/8			So served or not observable.
	01/		12	<ul> <li>Cloud development not ob- served or not observable.</li> <li>Clouds generally dissolving or becoming less developed.</li> <li>State of sky on the whole un- changed.</li> <li>Clouds generally forming or</li> </ul>
63	878		13	or becoming less developed.
64	8%4		14	$\{3, 5\}$ $\{02\}$ State of sky on the whole un-
65	93%		15	changed.
66	10		16	
67	10%		17	developing.
68	11¼		18	
69	11%		19	(04 Visibility reduced by smoke, e.g., veldt or fores
70	121/2		20	fires, industrial smoke or volcanic ashes.
71	131/8		21	05 Haze.
72	13¾		22	$_{\odot}$ 06 Widespread dust in suspension in the air, no
73	14%		23	raised by wind at or near the station at th time of observation.
74	15		23	<b>E</b> time of observation.
4 A A A	15%			
75	10%		25	• station at the time of observation but no well
76	16¼		26	developed dust whirl(s) or sand whirl(s), and
77	16%		27	<sup>20</sup> no duststorm or sandstorm seen, or in th
78	17½		28 •	case of ships, blowing spray at the station.
79	181/8		29	case of ships, blowing spray at the station. 08 Well developed dust whirl(s) or sand whirl(s
80	18¾		30	
81	21%		35	seen at or near the station during the preced ing hour, or at the time of observation, bu
82	25		40	ing hour, or at the time of observation, bu
83	281/8		45	no duststorm or sandstorm.
84	31¼		50	09 Duststorm or sandstorm within sight at th
85	34%		55	time of observation or at station during the
86	37½		60	preceding hour.
87	40%		65	10 Light fog. <sup>1</sup> (Vis. 1,100 yds. or more.)
88	4078			(shallow fog or ice fog at the station
1 A A	43¾		70	11 Patches of whether on land or sea, not deepe
89			Greater than	12 More or less { than about 6 feet on land or 33
	43¾.		70.	continuous feet at sea. (Apparent vis. les
90		Less than 55.	Less than 50	(than 1,100 yds.)
			<b>m.</b>	13 Lightning visible, no thunder heard.
91		55	50 m.	
92	1/8	220	200 m.	14 Precipitation within sight, but not reaching the
93	5/16	550	500 m.	ground or the surface of the sea.
94	5/8	1,100	1 km.	15 Precipitation within sight, reaching the ground o
95	1¼	2, 200	2	the surface of the sea, but distant (i.e., esti
96	$2\frac{1}{2}$	4, 400	4	mated to be more than 3.1 miles) from the station
97	6¼		10	16 Precipitation within sight, reaching the ground or
98	12½		10 20	the surface of the sea near to but not at the
E				station.
99	31¼ or more		50 or more.	17 Thunderstorm, but no precipitation at the time o
Norme			- 1 <u>+ − 6, 55 (1+ −</u> 1) - <u>− −1</u> - 1+ −1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 +	observation.
NOTES: (1) The	values given are dis	crete values (i.e. m	it ranges). If the ab	18 Squalls at or within sight of the station during the
			tances as given in the	그는 것은 것은 것 같은 것이 같은 것이 같은 것을 같은 것을 했다. 것은 것은 것은 것은 것은 것을 많은 것을 하는 것을 수가요.
	code figure of the low			preceding hour or at the time of observation.
	y the code figures 00			19 Funnel cloud(s) (i.e., tornado cloud or waterspout at or within sight of the station during the

### **Code Table 1**

#### [WMO Code 2700]

- Symbol N=Fraction of the Celestial Dome Covered by Cloud
- Symbol  $N_h$ =Fraction of the Celestial Dome Covered by All the  $C_L$  (or  $C_M$ ) Cloud present
- Symbol N<sub>s</sub>=Fraction of the Celestial Dome Covered by an Individual Cloud Layer or Mass

Code Figure	Fraction Covered in Tenths	Fraction Covered in Oktas
0	Zero	Zero
1	1 or less but not zero	1 Okta or less but not
	A CARLER AND A CARLE	zero
2	2 and 3	2
3	4	3
· · · 4	5	4
5	6	5
6	7 and 8	6
7	9 or more, but not $10_{}$	7 or more, but not 8
8	10	8
9	Celestial dome obscured	l, or cloud amount can
	not be estimated.	nina yana Xamarat 🖊

### **Code Table 2**

#### [WMO Code 0877]

	8	1.1.1.1.1.1.1.1.1	and the second	
Code Figure	True Direction	Code Figure	/True Direction	
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°	1
10	95°-104° /	29	285°-294°	
11	105°-114°/	30	295°-304°	
12	$115^{\circ}-124^{\circ}$	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°			

Symbol dd=Direction from Which Wind is Blowing

Nore.—Wind speeds from 100 to 199 knots, inclusive, are reported by adding 50 to the code figure for **dd** and coding the observed speed minus 100 for **ff**.

### EFFECTIVE JAN. 1, 1969

### **Code Table 3**

X

[WMO Code 4377]

### Symbol VV=Horizontal Visibility

Code Fig- ure	Statute Miles	Yards	Kilometers
00	Less than $\frac{1}{16}$	Less than	Less than 0.1.
		110.	A 1
01	16	110	0.1
02	1/8	220	0.2
03	3/16	330	0.3
04	1/4	440	0.4
05	5/16	550	0.5
06	3/8	660	0.6
07	7/16	770	0.7
08	1/2	880	0.8
09	9/16	990	0.9
10	/5/8	1, 100	1.0
11	11/16	1, 210	1.1
12/	3/4	1, 320	1.2
13	13/16	1, 430	1.3
14	7/8	1, 540	1.4
/ 15	15/16	1,650	1.5
/ 16	1	1,760	1.6
17	11/16	1,870	1.7
18	11/8	1, 980	1.8
19	13/16	2, 090	1.9
20	1¼	2, 200	2.0
21	15/16	2, 310	2.1
22	1%	2, 420	2.2
23	11/16	2, 530	2.3
24	1½	2,640	2.4
<b>25</b>	$1^{9_{16}}_{16}$	2,750	2.5
26	1%	2, 860	2.6
27	111/16	2, 970	2.7
28	1¾	3, 080	2.8
29	113/16	3, 190	2.9
30	1%	3, 300	3.0
31	115/16	3, 410	3.1
32	2	3, 520	3.2
33	21/16	3, 630	3.3
34	21/8	3, 740	3.4
35	2¾ <sub>16</sub>	3, 850	3.5
36	2¼	3, 960	3.6
37	254.	4, 070	3.7
38	2%	4, 180	3.8
39	21/16	4, 290	3.9
40	2½	4, 400	4.0
41	2%16	4, 510	4.1
<b>42</b>	25%	4, 620	4.2
43	211/18	4, 730	4. 3
44	2¾	4, 840	4.4
45	213/16	4, 950	4.5
46	21/8	5, 060	4.6
47	215/16	5, 170	4.7
48	3	5, 280	4.8
49	31/16	5, 390	4.9
50	31/8	5, 500	5.0
51	Not specified.		
52	Not specified.		and the second second
04	Not specified.		

FMH No.

Code Table 4—Continued	Code Table 4
20—29: Precipitation, fog, ice fog or thunderstorm at the station during the preceding hour but not	46 Fog or ice fog, sky discernible
at the time of observation.	47 Fog or ice fog, sky not discernible
20 Drizzle (not freezing) or snow grains	48 Fog, depositing rime, sl
20       Drizzle (not freezing) or snow grains         21       Rain (not freezing)         22       Snow         23       Rain and snow or ice pellets (type a)         24       Freezing drizzle or freezing rain	49 Fog, depositing rime, sk
24 Freezing drizzle or freezing rain Z	50—99: Precipitation at t
25 Shower(s) of rain.	observ
26 Shower(s) of snow, or of rain and snow.	50—59:
27 Shower(s) of hail, <sup>3</sup> or of rain and hail. <sup>3</sup>	<del></del>
28 Fog or ice fog. (Vis. less than 1,100 yds.).	50 Drizzle, not freezing, in
29 Thunderstorm (with or without precipitation).	tent
30—39: Duststorm, sandstorm, drifting or blowing	51 Drizzle, not freezing, co
snow.	ous
김 사람은 승규는 방법을 통해 가슴을 다 들었다. 것이 같이 많이 있다.	52 Drizzle, not freezing, in
30) (Has decreased during the preceding	tent 53 Drizzle, not freezing, co
Slight or hour.	ous
31 moderate No appreciable change during the duststorm preceding hour.	54 Drizzle, not freezing, in
32 or sandstorm Has begun or has increased during	tent
the preceding hour.	55 Drizzle, not freezing, co
(Has decreased during the preceding	ous
Severe hour.	56 Drizzle, freezing, slight
34 duststorm No appreciable change during the	57 Drizzle, freezing, mode
or sandstorm preceding hour.	58 Drizzle and rain, slight
35 <sup>1</sup> Has begun or has increased during the preceding hour.	59 Drizzle and rain, mode
36 Slight or moderate drifting snow, generally low. (Less than 6 ft.)	60—69:
37 Heavy drifting snow, generally low. (Less than 6 ft.)	60 Rain, not freezing, inter 61 Rain, not freezing, cont
38 Slight or moderate blowing snow, generally high.	62 Rain, not freezing, inter
(6 ft. or more)	63 Rain, not freezing, cont
39 Heavy blowing snow, generally high. (6 ft. or	64 Rain, not freezing, inte
more). The second s	65 Rain, not freezing, com
40-49: Fog or ice fog at the time of observation.	66 Rain, freezing, slight.
(Vis. less than 1,100 yds.)	67 Rain, freezing, modera
10 Tomon instants distance at the time of absorve	68 Rain or drizzle and sno
40 Fog or ice fog at a distance at the time of observa- tion, but not at the station during the preceding	69 Rain or drizzle and sno
hour, the fog or ice fog extending to a level above	70—79: Solid precip
that of the observer.	
41 Fog or ice fog in patches	70 Intermittent fall of sno
42 Fog or ice fog, sky	71 Continuous fall of snov
43 Fog or ice fog, sky not	72 Intermittent fall of sno
discernible -ceding hour.	73 Continuous fall of snov
전 경험 승규는 것은 바람이 걸 때문에 집을 얻는 것이 가지 않는 것이 많이 많다.	74 Intermittent fall of sno
44 Fog or ice fog, sky	75 Continuous fall of snov

 $\mathbf{45}$ Fog or ice fog, sky not discernible

16.

### -Continued

Has begun or has become thicker during the preceding hour. y discernible. y not discernible.

he station at the time of ation

#### Drizzle.

- termit-Slight at time of ontinuobservation. termit Moderate at time ontinuof observation. termit-Heavy (dense) at time of obser-
- ontinu-
- rate or heavy (dense).
- rate or heavy.

#### Rain.

vation.

of observation.

1

60 61	Rain, not freezing, intermittent Slight at time of Rain, not freezing, continuous observation.
62 63	$\left. \begin{array}{c} {\rm Rain, \ not \ freezing, \ intermittent} \\ {\rm Rain, \ not \ freezing, \ continuous} \end{array} \right\} \begin{array}{c} {\rm Moderate \ at \ time} \\ {\rm of \ observation.} \end{array} \right.$
$\begin{array}{c} 64 \\ 65 \end{array}$	Rain, not freezing, intermittent $Heavy$ at time of Rain, not freezing, continuous $beta$ observation.
66 67 68 69	Rain, freezing, slight. Rain, freezing, moderate or heavy. Rain or drizzle and snow, slight. Rain or drizzle and snow, moderate or heavy.
	70—79: Solid precipitation not in showers
70 71	$\begin{array}{llllllllllllllllllllllllllllllllllll$
72	Intermittent fall of snow flakes Moderate at time

- flakes w flakes Heavy at time of flakes | observation.
- 76 Ice prisms (with or without fog).
- 77 Snow grains (with or without fog).



- discernible

- change during the preceding hour.

CODE AND CONVERSION TABLES **Code Table 4—Continued Code Table 5** [WMO Code 4500] 78 Isolated starlike snow crystals (with or without fog). Symbol W=Past Weather 79Ice pellets (type a) (sleet, U.S. definition). Code -99: Showery precipitation, or precipitation with 80-Weather Figcurrent or recent thunderstorm ure Rain shower(s), slight. 80 0 Cloud covering  $\frac{1}{2}$  or less of the celestial dome 81 Rain shower(s), moderate or heavy. throughout the appropriate period. 82. Rain shower(s), violent. 1 Cloud covering more than  $\frac{1}{2}$  of the celestial Shower(s) of rain and snow mixed, slight. 83 dome during part of the appropriate period 84 Shower(s) of rain and snow mixed, moderate or and covering  $\frac{1}{2}$  or less during part of the heavy. period. 85 Snow shower(s), slight.  $\mathbf{2}$ Cloud covering more than  $\frac{1}{2}$  of the celestial 86 Snow shower(s), moderate or heavy. dome throughout the appropriate period. Shower(s) of snow pellets, or 3 Sandstorm, duststorm, or blowing snow. Slight. 87 ice pellets (type b) with or Moderate or Fog, ice fog, thick haze or thick smoke. 4 88 without rain or rain and heavy.  $\mathbf{5}$ Drizzle. snow mixed. 6 Rain. Shower(s) of hail,<sup>2</sup> with or 7 Snow, rain and snow mixed, or ice pellets. Slight. 89 without rain or rain and Shower(s). 8 Moderate or 90 snow mixed, not associated Thunderstorm, with or without precipitation. 9 heavy. with thunder. 91 Slight rain at time of observa-NOTE.-The term "ice pellets" is synonymous with the U.S. term tion. "sleet." 92 Moderate or heavy rain at Thunderstorm **Code Table 6** time of observation. during the 93 Slight snow or rain and snow preceding hour Symbol PPP=Atmospheric Pressure Remixed or hail <sup>3</sup> at time of but not at . duced to Sea Level observation. time of 94 Moderate or heavy snow, or observation. Symbol P.P.P.P.P.Station Pressure rain and snow mixed or hail<sup>3</sup> at time of observation. (One inch=33.86389 Millibars) Thunderstorm, slight or mod-95 (One millibar=0.02952998 inch) erate, without hail 3 but with rain and/or snow at mb. mb. in. in. in. mb. time of observation. 96 Thunderstorm, slight or mod-Thunderstorm erate, with hail <sup>3</sup> at time of at time of 27.50 931.3 27.68 937.4 27.86 943.4 observation. observation. 937.7 27.87 27.51 931.\6 27.69 943.8 97 Thunderstorm, heavy, with-27.52 931. Š 27.70 938.0 27.88 944.1 out hail, <sup>3</sup> but with rain 27.53 932. 3 27.71 938.4 27.89 944.5 and/or snow at time of 27.54 932.6 27.72 938.7 27, 90 944.8 observation. 27.55 933.0 27.73 939.0 27.91 945.1 939. 4 27.56 933.3 27.74 27.92 945.5 98 Thunderstorm combined with

27.57

27.58

27.59

27.60

27.61

27.62

27.63

27.64

27.65

27.66

27.67

Thunderstorm

at time of

observation.

933.6

934.0

934.3

934.6

935.0

935.3

935.7

936.0

936.3

936.7

937.0

27. 75

27. 76

27.77

27.78

27.79

27.80

27.81

27.82

27.83

27.84

27.85

duststorm or sandstorm at time of observation. 99 Thunderstorm, heavy with hail<sup>3</sup> at time of observation.

<sup>1</sup> The U.S. term, "light fog" is synonymous with the European term "mist."

<sup>2</sup> Refers to "hail" only. <sup>3</sup> Refers to snow pellets, ice pellets (type b), and hail.

NOTE .- With respect to precipitation, "at the station" means "at the

point where the observation is normally taken."

FMH No. 2

27.93

27.94

27.95

27.96

27.97

27.98

27.99

28,00

28.01

28.02

28.03

945.8

946.2

946.5

946.8

947.2

947.5

947.9

948.2

948.5

948.9

949.2

939.7

940.1

940.4

940.7

941.1

941.4

941.8

942.1

942.4

942.8

943. 1





EFFECTIVE JAN. 1, 1969



### **Code Table 4—Continued**

<ul> <li>mixed or hail <sup>3</sup> at time of observation.</li> <li>94 Moderate or heavy snow, or rain and snow mixed or hail <sup>3</sup> at time of observation.</li> <li>95 Thunderstorm, slight or moderate, without hail <sup>3</sup> but with rain and/or snow at time of observation.</li> <li>96 Thunderstorm, slight or moderate, with hail <sup>3</sup> at time of observation.</li> <li>96 Thunderstorm, slight or moderate, with hail <sup>3</sup> at time of observation.</li> <li>97 Thunderstorm, heavy, without hail, <sup>3</sup> but with rain and/or snow at time of observation.</li> <li>98 Thunderstorm combined with duststorm or sandstorm at time of observation.</li> <li>98 Thunderstorm, heavy with hail <sup>3</sup> at time of observation.</li> <li>99 Thunderstorm, heavy with hail <sup>3</sup> at time of observation.</li> </ul>	79	Ice pellets (type a) (sleet, U.S. c	lefinition).
<ul> <li>81 Rain shower(s), moderate or heavy.</li> <li>82 Rain shower(s), violent.</li> <li>83 Shower(s) of rain and snow mixed, slight.</li> <li>84 Shower(s) of rain and snow mixed, moderate heavy.</li> <li>85 Snow shower(s), slight.</li> <li>86 Snow shower(s), moderate or heavy.</li> <li>87 Shower(s) of snow pellets, or ice pellets (type b) with or without rain or rain and snow mixed.</li> <li>89 Shower(s) of hail,<sup>2</sup> with or without rain or rain and snow mixed.</li> <li>80 Shower(s) of hail,<sup>2</sup> with or without rain or rain and snow mixed.</li> <li>81 Shower(s) of hail,<sup>2</sup> with or without rain or rain and snow mixed.</li> <li>82 Shower(s) of hail,<sup>2</sup> with or without rain or rain and snow mixed.</li> <li>93 Shower(s) of hail,<sup>3</sup> at time of observation.</li> <li>94 Moderate or heavy snow, or rain and snow mixed or hail <sup>3</sup> at time of observation.</li> <li>95 Thunderstorm, slight or moderate, without hail <sup>3</sup> but with rain and/or snow at time of observation.</li> <li>96 Thunderstorm, slight or moderate, without hail <sup>3</sup> but with rain and/or snow at time of observation.</li> <li>97 Thunderstorm, heavy, without hail, <sup>3</sup> but with rain and/or snow at time of observation.</li> <li>98 Thunderstorm combined with duststorm or sandstorm at time of observation.</li> <li>99 Thunderstorm, heavy with hail <sup>3</sup> at time of observation.</li> <li>90 Thunderstorm, heavy with hail <sup>3</sup> at time of observation.</li> <li>91 Thunderstorm, heavy with hail <sup>3</sup> at time of observation.</li> </ul>	80-		
<ul> <li>81 Rain shower(s), moderate or heavy.</li> <li>82 Rain shower(s), violent.</li> <li>83 Shower(s) of rain and snow mixed, slight.</li> <li>84 Shower(s) of rain and snow mixed, moderate heavy.</li> <li>85 Snow shower(s), slight.</li> <li>86 Snow shower(s), moderate or heavy.</li> <li>87 Shower(s) of snow pellets, or ice pellets (type b) with or without rain or rain and snow mixed.</li> <li>89 Shower(s) of hail,<sup>2</sup> with or without rain or rain and snow mixed.</li> <li>80 Shower(s) of hail,<sup>2</sup> with or without rain or rain and snow mixed.</li> <li>81 Shower(s) of hail,<sup>2</sup> with or without rain or rain and snow mixed.</li> <li>82 Shower(s) of hail,<sup>2</sup> with or without rain or rain and snow mixed.</li> <li>93 Shower(s) of hail,<sup>3</sup> at time of observation.</li> <li>94 Moderate or heavy snow, or rain and snow mixed or hail <sup>3</sup> at time of observation.</li> <li>95 Thunderstorm, slight or moderate, without hail <sup>3</sup> but with rain and/or snow at time of observation.</li> <li>96 Thunderstorm, slight or moderate, without hail <sup>3</sup> but with rain and/or snow at time of observation.</li> <li>97 Thunderstorm, heavy, without hail, <sup>3</sup> but with rain and/or snow at time of observation.</li> <li>98 Thunderstorm combined with duststorm or sandstorm at time of observation.</li> <li>99 Thunderstorm, heavy with hail <sup>3</sup> at time of observation.</li> <li>90 Thunderstorm, heavy with hail <sup>3</sup> at time of observation.</li> <li>91 Thunderstorm, heavy with hail <sup>3</sup> at time of observation.</li> </ul>	80	Rain shower(s) slight	
<ul> <li>82 Rain shower(s), violent.</li> <li>83 Shower(s) of rain and snow mixed, slight.</li> <li>84 Shower(s) of rain and snow mixed, moderate heavy.</li> <li>85 Snow shower(s), slight.</li> <li>86 Snow shower(s), moderate or heavy.</li> <li>87 Shower(s) of snow pellets, or ice pellets (type b) with or without rain or rain and snow mixed.</li> <li>89 Shower(s) of hail,<sup>2</sup> with or without rain or rain and snow mixed, not associated with thunder.</li> <li>91 Slight rain at time of observation.</li> <li>92 Moderate or heavy rain at time of observation.</li> <li>93 Slight snow or rain and snow mixed or hail <sup>3</sup> at time of observation.</li> <li>94 Moderate or heavy snow, or rain and snow mixed or hail <sup>3</sup> at time of observation.</li> <li>95 Thunderstorm, slight or moderate, without hail <sup>3</sup> but with rain and/or snow at time of observation.</li> <li>96 Thunderstorm, slight or moderate, with hail <sup>3</sup> at time of observation.</li> <li>97 Thunderstorm, heavy, without hail, <sup>3</sup> but with rain and/or snow at time of observation.</li> <li>98 Thunderstorm combined with duststorm or sandstorm at time of observation.</li> <li>98 Thunderstorm combined with hail <sup>3</sup> at time of observation.</li> <li>98 Thunderstorm combined with duststorm or sandstorm at time of observation.</li> <li>99 Thunderstorm, heavy with hail <sup>3</sup> at time of observation.</li> <li>90 Thunderstorm, heavy with hail <sup>3</sup> at time of observation.</li> </ul>	1.1		VV.
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<ul> <li>with thunder.</li> <li>91 Slight rain at time of observation.</li> <li>92 Moderate or heavy rain at time of observation.</li> <li>93 Slight snow or rain and snow mixed or hail <sup>3</sup> at time of observation.</li> <li>94 Moderate or heavy snow, or rain and snow mixed or hail <sup>3</sup> at time of observation.</li> <li>95 Thunderstorm, slight or moderate, without hail <sup>3</sup> but with rain and/or snow at time of observation.</li> <li>96 Thunderstorm, slight or moderate, with hail <sup>3</sup> at time of observation.</li> <li>97 Thunderstorm, slight or moderate, with hail <sup>3</sup> at time of observation.</li> <li>98 Thunderstorm combined with duststorm or sandstorm at time of observation.</li> <li>98 Thunderstorm, heavy with hail <sup>3</sup> at time of observation.</li> <li>98 Thunderstorm combined with duststorm or sandstorm at time of observation.</li> <li>99 Thunderstorm, heavy with hail <sup>3</sup> at time of observation.</li> </ul>	90	snow mixed, not associated	
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<ul> <li>98 Thunderstorm combined with duststorm or sandstorm at time of observation.</li> <li>99 Thunderstorm, heavy with hail <sup>3</sup> at time of observation.</li> <li><sup>1</sup> The U.S. term, "light fog" is synonymous with the European "mist."</li> </ul>			
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99 Thunderstorm, heavy with hail <sup>3</sup> at time of observation. ) observation 	·		1 · · · · · · · · · · · · · · · · · · ·
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<sup>1</sup> The U.S. term, "light fog" is synonymous with the European "mist."	~~	, .	
"mist."			
"mist."	<del></del>	and the second	
			rith the European ter
<sup>2</sup> Refers to "hail" only.			
<sup>a</sup> Refers to "half" only. <sup>3</sup> Refers to snow pellets, ice pellets (type b), and hail.			nd hail.
Note.—With respect to precipitation, "at the station" means "a			the state of the s







#### **Code Table 8—Continued Code Table 5** [WMO Code 0513] [WMO Code 4500] Code Symbol W=Past Weather Technical Specifica-Nontechnical Specifi-Figtions cations ure Code Weather Fig- $\mathbf{2}$ having their bases other Cumulus or by ure at the same level. Stratocumulus; all having their bases at the same level. Cloud covering $\frac{1}{2}$ or less of the celestial dome 0 throughout the appropriate period. 3 Cumulonimbus Cumulonimbus, the 1 Cloud covering more than $\frac{1}{2}$ of the celestial calvus, with or summits of which, dome during part of the appropriate period without Cumulus, at least partially, and covering $\frac{1}{2}$ or less during part of the Stratocumulus or lack sharp outlines, period. but are neither Stratus: $\mathbf{2}$ Cloud covering more than $\frac{1}{2}$ of the celestial clearly fibrous (cirdome throughout the appropriate period. riform) nor in the 3 Sandstorm, duststorm, or blowing snow. form of an anvil; Fog, ice fog, thick haze or thick smoke. 4 Cumulus, Stratocu- $\mathbf{5}$ Drizzle. mulus or Stratus 6 Rain. may also be present. $\mathbf{7}$ Snow, rain and snow mixed, or ice pellets. 8 Shower(s). 4 Stratocumulus cu-Stratocumulus formed Thunderstorm, with or without precipitation. 9 by the spreading out mulogenitus. of Cumulus; Cumulus may also be NOTE,-The term "ice pellets" is synonymous with the U.S. term present. "sleet." Stratocumulus not re-5 Stratocumulus other than Stratocumusulting from the lus cumulogenitus spreading out of **Code Table 8** Cumulus. [WMO Code 0513] 6 Stratus nebulosus Stratus in a more or Symbol $C_L$ =Clouds of Genera Sc, St, Cu, Cb less continuous sheet or Stratus fractus or layer, or in ragother than of bad Code Technical Specifica-Nontechnical Specifiged shreds, or both, weather,<sup>1</sup> or both. Figtions cations but no Stratus ure fractus of bad weather.1 No C<sub>L</sub> clouds\_\_\_\_\_ No Stratocumulus. 0 Stratus, Cumulus, Stratus fractus or Stratus fractus of bad 7 or Cumulonimbus. weather 1 or Cumu-Cumulus fractus of bad weather,1 lus fractus of bad 1 Cumulus humilis or Cumulus with little or both (pannus), weather,1 or both Cumulus fractus vertical extent and usually below (pannus), usually below Altostratus or other than of bad seemingly flattened, Altostratus or weather,<sup>1</sup> or both. or ragged Cumulus Nimbostratus. Nimbostratus. other than of bad weather,<sup>1</sup> or both. Cumulus and Strato-8 Cumulus and Stratocumulus other cumulus other than $\mathbf{2}$ Cumulus mediocris Cumulus of moderate that formed from the than Stratocumuspreading out of or congestus. or strong vertical lus cumulogeniwith or without extent generally tus, with bases Cumulus; the base Cumulus of spewith protuberances at different levels. of the Cumulus is at

Stratocumulus.

a different level

from that of the

18.

in the form of domes

or towers, either ac-

companied or not by

cies fractus or

tocumulus, all

humilis, or Stra-

### Code Table 6—Continued

Code Table 6—Continued

in.	mb.	in.	mb.	in.	mb.	in.	mb.	in.	mb.	in.	mb.
28. 04	949. 5	28. 58	967.8	29. 12	986. 1	29.66	1, 004. 4	30. 20	1, 022. 7	30.74	1, 041. 0
28.05	949. 9	28. 59	968. 2	29.13	986. 5	29.67	1, 004. 7	30. 21	1, 023. 0	30.75	1, 041. 3
28.06	950, 2	28.60	968.5	29.14	986. 8	29.68	1, 005. 1	30. 22	1, 023. 4	30.76	1, 041. 7
28.07	950.6	28.61	968.8	29. 15	987.1	29.69	1, 005. 4	30. 23	1, 023. 7	30.77	1, 042. 0
28.08	950. 9	28, 62	969.2	29.16	987.5	29.70	1, 005. 8	30. 24	1, 024. 0	30.78	1, 042. 3
28.09	951. 2	28. 63	969.5	29. 17	987.8	29.71	1, 006. 1	30. 25	1, 024. 4	30.79	1, 042. 7
28. 10	951.6	28. 64	969. 9	29. 18	988.1	29.72	1, 006. 4	30. 26	/1, 024. 7	30. 80	1, 043. 0
$28.\ 11$	951.9	28.65	970. 2	29.19	988.5	29.73	1, 006. 8	30. 27/	1, 025. 1	30. 81	1, 043. 3
28.12	952.3	28.66	<b>970.</b> 5	29. 20	988.8	29.74	1, 007. 1	30. 28	1, 025. 4	30.82	1, 043. 7
28.13	952.6	28.67	<b>\970. 9</b>	29.21	<b>989.</b> 2	29.75	1, 007. 5	30: 29	1, 025. 7	30. 83	1, 044. 0
28.14	952.9	28.68	971. 2	29. 22	989.5	29.76	1, 007. 8	30. 30	1, 026. 1	30.84	1, 044. 4
28.15	953. 3	28.69	97 <sup>1</sup> , 6	29. 23	989. 8	29.77	1, 008. 1	30. 31	1, 026. 4	30.85	1, 044. 7
28.16	953.6	28.70	971.`9	29.24	990. 2	29.78	1, 008. 5	30. 32	1, 026. 8	30.86	1, 045. 0
28.17	953. 9	28.71	972. 2\	29. 25	990.5	29.79	1, 008/ 8	30. 33	1, 027. 1	30.87	1, 045. 4
28.18	954.3	28.72	972.6	29. 26	990. 9	29.80	1, 009. 1	30.34	1, 027. 4	30.88	1, 045. 7
28. 19	954.6	28.73	972.9	29. 27	991. 2	29.81	1,/009. 5	30.35	1, 027. 8	30.89	1, 046. 1
28. 20	955. 0	28.74	973.2	29.28	991.5	29.82	1,009.8	30.36	1, 028. 1	30.90	1, 046. 4
28. 21	955.3	28.75	973.6	29. 29	991.9	29.83/	1, 010. 2	30. 37	1, 028. 4	30.91	1, 046. 7
28. 22	955.6	28.76	973.9	29. 30	992.2	29.84	1,010.5	30. 38	1, 028. 8	30. 92	1,047.1
28, 23	956.0	28.77	974.3	29.31	992.6	29: 85	1,010.8	30. 39	1,029.1	30.93	1,047.4
28. 24	956. 3	28.78	974.6	29.32	992.9	29.86 /29.87	1,011.2	30.40	1,029.5	30.94 30.95	1, 047. 7 1, 048. 1
28. 25	956. 7 057 0	28.79	974. 9 075 - 2	29.33	993. 2	29.87	1,011.5	30.41	1,029.8	30. 95 30. 96	1, 048. 4
28. 26 28. 27	957.0 957.3	28. 80 28. 81	975.3 975.6	29.34	993.6 993.9	29.88 29.89	1, 011. 9 1, 012. 2	30. 42 30. 43	1, 030. 1 1, 030. 5	30.90	1,048.4 1,048.8
28. 21	957. 3 957. 7	28.81	975.0 976.0	29.35 29.36	995, 9 994, 2	29. 89 29. 90	1,012.5	30. 43	1,030.5 1,030.8	30. 98	1,049.1
28, 29	958.0	28, 83	976. 3	29.30	994. 6	29.90 29.91	1, 012. 9	30. 45	1, 030. 0	30.99	1, 049. 4
28.30	958. 3	28.84	976.6	29. 38	994.9	29.91	1, 013. 2	30.46	1, 031. 5	31.00	1, 049.
28. 31	958.7	28.85	977.0	29.39	995. 3	29. 93	1, 013. 5	30. 47	1, 031. 8	31.01	1, 050.
28. 32	959.0	28.86	977.3	29. 40/	995.6	29. 94	1, 013. 9	30. 48	1, 032. 2	31. 02	1, 050. 5
28.33	959.4	28.87	977.7	29.41	995.9	29.95	1, 014. 2	30.49	1, 032. 5	31. 03	1, 050. 8
28.34	959.7	28.88	978.0	29:42	996. 3	29. 96	1, 014. 6	30. 50	1, 032. 8	31.04	1, 051. 1
28.35	960. 0	28. 89	978.3	29.43	996.6	29. 97	1, 014. 9	30. 51	1, 033. 2	31.05	1, 051. 5
28.36	960.4	28.90	978.7	29.44	997.0	29.98	1, 015. 2	30.52	1, 033. 5	31.06	1, 051. 8
28.37	960.7	28.91	979. 0′	29.45	997. 3	29. 99	1,015.6	30. 53	1, 033. 9	31. 07	1, 052. 2
28.38	961.1	28.92	979/3	29.46	997.6	30.00	1, 015. 9	30.54	1, 034. 2	31. 08	1, 052. 5
28.39	961.4	28.93	979.7	29.47	998. 0	30.01	1,016.3	30. 55	1, 034. 5	31.09	1, 052. 8
28.40	961.7	28.94	980. 0	29.48	998.3	30. 02	1,016.6	30. 56	1,034.9	31. 10	1, 053. 2
28.41	962.1	28.95	980.4	29.49	998.6	30. 03	1,016.9	30. 57	1,035.2	31. 11	1,053.5
28.42	962.4	28.96	980.7	29.50	999. 0	30.04	1,017.3	30.58	1,035.6	31. 12	1,053.8
28.43	962. 8 062 1	28.97	981. 0	29.51	999. 3	30.05	1,017.6	30.59	1, 035. 9 1, 036. 2	$\begin{array}{c} 31.13 \\ 31.14 \end{array}$	1,054.2
28.44	963. 1 062. 4	28/98	981.4	29.52	999. 7 1 000 0	30. 06	1, 017. 9 1, 018. 3	30, 60 30, 61	1,030.2 1,036.6	31. 14	1, 054. 5 1, 054. 9
28.45 28.46	963.4 963.8	28.99 29.00	981. 7 982. 1	29.53	1,000.0	30. 07 20. 08	1, 018. 5	30. 62	1, 036. 9	31. 15	1, 055. 2
28.40 28.47	903. 8 964. 1	29.00 29.01	982. 1 982. 4	29.54 29.55	1, 000. 3 1, 000. 7	30. 08 30. 09	1, 019. 0		1,037.3	31. 17	1, 055. 5
28.41 28.48	964. 1 964. 4	29.01	982.4 982.7	29.55	1,000.7 1,001.0	30. 09 30. 10	1, 019. 0	30. 64	1, 037. 6	31. 18	1,055.9
28.48 28.49	964. <del>4</del> 964. 8	29.02	982. 7 983. 1	29.50	1,001.0 1,001.4	30. 10 30. 11	1, 019. 6	30. 65	1, 037. 9	31. 19	1, 056. 2
28.50	965. 1	29.03	983.4	29.58	1,001.4 1,001.7	30.11 30.12	1, 019. 0	30. 66	1, 038. 3	31. 20	1, 056. 6
28.50 28.51	965. 5	29.05	983. 7	29.59	1,001.0 1,002.0	30. 12	1, 020. 3	30. 67	1, 038, 6	31. 21	1, 056. 9
28. 51	965. 8	29.06	984. 1	29. 60	1,002.0 1,002.4	30.13 30.14	1, 020. 7	30. 68	1, 038. 9	31. 22	1, 057. 2
28. 53	966. 1	29.07	984. 4	29.60	1,002.1 1,002.7	30. 15	1, 021. 0	30. 69	1, 039. 3	31. 23	1, 057. 6
28.54	966. 5	29.08	984.8	29.62	1, 003. 0	30. 16	1, 021. 3	30.70	1, 039. 6	31. 24	1, 057. 9
28. 55	966. 8	29.09	985.1	29.63	1, 003. 4	30. 17	1, 021. 7	30.71	1, 040. 0	31. 25	1, 058. 2
28.56	967.2	29.10	985.4	29.64	1, 003. 7	30. 18	1, 022. 0	30. 72	1, 040. 3	31. 26	1, 058. 6
28.57	967.5	29.11	985.8	29.65	1, 004. 1	30.19	1, 022. 4	30. 73	1, 040. 6	31. 27	1, 058. 9

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	Code Table 8-	-Continued		Code Ta	
Code Fig- ure	Technical Specifica- tions	Nontechnical Specifi- cations	Syr		f Genera Ac, As, Ns
9	Cumulonimbus	Cumulonimbus, the	Code Fig- ure	Technical Specifica- tions	Nontechnical Specifi- cations
	capillatus (often with an anvil),	upper part of which is clearly fibrous			
	with or without Cumulonimbus calvus, Cumulus,	(cirriform), often in the form of an anvil, either accompanied	0	No C <sub>M</sub> clouds	stratus or Nimbo-
	Stratocumulus,	or not by Cumulo-			stratus.
	Stratus or pannus.	nimbus without anvil or fibrous upper part, by Cumulus, Stratocumulus, Stratus or pannus.	1	Altostratus trans- lucidus.	Altostratus, the greater part of which is semi- transparent; through this part the sun or moon may be weakly
10	$C_{L}$ clouds invisible	Stratocumulus, Stratus,			visible as through ground glass.
	owing to dark- ness, fog, blow-	Cumulus, or Cumu- lonimbus invisible	2	Altostratus opacus	Altostratus, the greate
	ing dust or sand, or other similar phenomena.	owing to darkness, fog, blowing dust or sand, or other similar phenomena.		or Nimbostratus.	part of which is suffi- ciently dense to hide the sun or moon, or Nimbostratus.
<sup>1</sup> "Bad precipitat	weather" denotes the conditi ion and a short time before ar	ons which generally exist durin g 1d after.	3	Altocumulus trans- lucidus at a single level.	Altocumulus, the greater part of which is semitransparent,
	Code Ta		n an an An Anna An An Anna An Angar		the various elements of the cloud change only slowly and are all at a single level.
Symbo	ol <b>h</b> =Height above of the Cloud	Ground of the Base	4	Patches (often len- ticular) of Alto-	Patche (often in the form of almonds or
Code Figure	Height in Feet	Height in Meters		cumulus translu- cidus, continually changing and occuring at one	fishes) of Altocumu- lus, the greater part of which is semi- transparent; the
0	0- 149			or more levels.	clouds occur at one
$\frac{1}{2}$	150– 299 300– 599				or more levels and the elements are continu-
3 4	600- 999 1, 000-1, 999	200– 299			ally changing in appearance.
$\frac{1}{5}$	2, 000–3, 499 3, 500–4, 999	600- 999	5	Altocumulus trans-	Semitransparent Alto-

cumulus in bands, or

Altocumulus in one

or more fairly con-

transparent or

opaque), progres-

sively invading the

lus cloud generally

thicken as a whole.

sky; these Altocumu-

tinuous layers (semi-

 $\mathbf{2}$ 3 4  $\mathbf{5}$ 6 3, 500-4, 999\_\_\_\_\_ 1, 000-1, 499  $\mathbf{7}$ 5, 000-6, 499\_\_\_\_\_ 1, 500-1, 999 6, 500-7, 999\_\_\_\_\_ 8 2,000-2,499 9 8,000 or higher, or no 2, 500 or higher, or no clouds. clouds. 10 was encoded

NOTES: (1) The heights (in feet) given in this code table approximately correspond to those given in WMO Code 1600 and to those given in the ninth decade (i.e., code figures 90-99) of WMO Code 1577.

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

erally thicken as a whole.

lucidus in bands,

or one or more

layer of Alto-

cumulus trans-

lucidus or opacus,

progressively in-

vading the sky;

these Altocumu-

lus clouds gen-

# Code Table 10—Continued

### Code Table 11

[WMO Code 0509]

		· · · ·		[WMO Code	ə 0509j
Code	Technical Specifica-	Nontechnical Specifi-	Svr	nbol C <sub>H</sub> =Clouds of	Genera Ci Cc. Cs
Fig-	tions	cations	Oyr	HOOI OH = Olouus of	
ure					
		- <u> </u>	Code	Technical Specifica-	Nontechnical Specifi-
			Fig-	tions	/ cations
6	Altocumulus cumu-	Altocumulus resulting	ure		
	logenitus (or	from the spreading	<u></u>		
	cumulonimbo-	out of Cumulus (or			A CARLER AND A CARLE
	<b>``</b>	Cumulonimbus).	0	No C <sub>H</sub> clouds	No Cirrus, Cirrocumu-
	genitus).	Cumulommous).			lus, or Cirrostratus.
7	Altocumulus tràns-	Altocumulus in two or			Climan in the form of
	lucidus or opacus	more layers, usually	1	Cirrus fibratus,	Cirrus in the form of
	in two or more	opaque in places, and		sometimes unci-	filaments, strands or
	layers, or Alto-	not progressively		nus, not progres-	hooks, not progres-
	cumulus opacus	invading the sky; or		sively invading	sively invading the
				the sky.	sky.
	in a single layer	opaque layer of Alto-		one only.	~ <b></b> ,
	not progressively	cumulus, not pro-		at an and the second	Dongo Cirrug in notabos
11	invading the sky,	gressively invading	<b>2</b>	Cirrus spissatus, in	Dense Cirrus in patches
	or Altocumulus	the sky; or Alto-		patchés or entan-	or entangled sheaves,
	with Altostratus	cumulus together		gled sheaves,	which usually do not
	or Nimbostratus.	with Altostratus or		which usually do	increase and some-
	or mindostratus.	· · · · · · · · · · · · · · · · · · ·		not increase and	times seem to be the
		Nimbostratus.		sometimes seem	remains of the upper
8	Altocumulus castel-	Altocumulus with		/ to be the remains	part of a Cumulo-
	lanus or floccus.	sproutings in the form	. 1	of the upper part	nimbus; or Cirrus
		of small towers or		of a Cumulonim-	with sproutings in
		battlements, or Alto-	1	bus; or Cirrus	the form of small
		battlements, or Alto-	Far	castellanus or	turrets or battle-
		cumulus having the			ments, or Cirrus
	•	appearance of cumu-	1	floccus.	
		liform tufts.	2		having the appear-
	* · · · ·		1		ance of cumuliform
9	Altocumulus of a	Altocumulus of a	N.		tufts.
. 9		chaotic sky, gen-	<b>N</b>	1	
	chaotic sky, gen-		10	Cirrus spissatus cu-	Dense Cirrus, often in
	erally at several	erally at several /	2		the form of an anvil,
	levels.	levels.	2	mulonimbogeni-	
		and the second		tus.	being the remains of
1	C <sub>M</sub> clouds invisible	Altocumulus, Alto-			the upper parts of
. '	owing to dark-	stratus and Nimbo-			Cumulonimbus.
		stratus invisible		, 'v	
	ness, fog, blowing		4	Cirrus uneinus or fi-	Cirrus in the form of
	dust or sand, or	owing to darkness,	т		hooks or of filaments
	other similar phe-	fog, blowing dust or		bratus, or both,	
	nomena, or be-	sand or other similar		progressively in-	or both, progressively
	cause of a con-	phenomena, or more		vading the sky;	invading the sky;
	tinuous layer of	often because of the		they generally	they generally be-
	lower clouds.	presence of a con-	ŕ	thicken as a	come denser as a
	Tower crouds.			whole.	whole.
		/tinuous layer of		windle.	
		lower clouds.			Cirrus (often in bands
		f a star a s	5	Cirrus (often in	
				bands) and Cirro-	converging towards
				stratus, or Cirro-	one or two opposite
				stratus alone, pro-	points of the hori-
				gressively invad-	zon) and Cirrostra-
					tus, or Cirrostratus
				ing the sky; they	
				generally thicken	alone; in either case,
				as a whole, but	they are progres-
•				the continuous	sively invading the
				veil does not	sky, and generally
				•	
	-				

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### Code Table 10—Continued

Code

Fig-

6

7

8

9

10

Altocumulus of a

levels.

erally at several

C<sub>M</sub> clouds invisible

owing to dark-

ness, fog, blowing

other similar phe-

dust or sand. or

nomena, or be-

cause of a con-

lower clouds.

tinuous layer of

ure

#### Code Table 11

#### [WMO Code 0509] Technical Specifica-Nontechnical Specifi-Symbol $C_{H}$ = Clouds of Genera Ci, Cc, Cs tions cations Code Technical Specifica-Nontechnical Specifitions Figcations Altocumulus resulting Altocumulus cumuure logenitus (or from the spreading cumulonimboout of Cumulus (or No Cirrus, Cirrocumu-No C<sub>H</sub> clouds\_\_\_\_ 0 genitus). Cumulonimbus). lus, or Cirrostratus. Altocumulus trans-Altocumulus in two or Cirrus fibratus. Cirrus in the form of 1 lucidus or opacus more layers, usually filaments, strands or sometimes unciin two or more opaque in places, and nus, not progreshooks, not progreslayers, or Altonot progressively sively invading sively invading the invading the sky; or cumulus opacus the sky. sky. opaque layer of Altoin a single layer cumulus, not pronot progressively Cirrus spissatus, in 2 gressively invading invading the sky, patches or entanor Altocumulus the sky; or Altogled sheaves. with Altostratus cumulus together which usually do or Nimbostratus. with Altostratus or not increase and Nimbostratus. sometimes seem to be the remains Altocumulus castel-Altocumulus with of the upper part lanus or floccus. sproutings in the form of a Cumulonimof small towers or battlements, or Altobus; or Cirrus castellanus or cumulus having the floccus. appearance of cumuhaving the appearliform tufts.

Altocumulus of a chaotic sky, genchaotic sky, generally at several levels.

> 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.

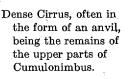
Dense Cirrus in patches or entangled sheaves, which usually do not increase and sometimes seem to be the remains of the upper part of a Cumulonimbus: or Cirrus with sproutings in the form of small turrets or battlements, or Cirrus

Cirrus spissatus cumulonimbogenitus.

3

Cirrus uncinus or fi-4 bratus, or both, progressively invading the sky; they generally thicken as a whole.

Cirrus (often in  $\mathbf{5}$ bands) and Cirrostratus, or Cirrostratus alone, progressively invading the sky; they generally thicken as a whole, but the continuous veil does not



ance of cumuliform

tufts.

Cirrus in the form of hooks or of filaments or both, progressively invading the sky; they generally become denser as a whole.

Cirrus (often in bands converging towards one or two opposite points of the horizon) and Cirrostratus, or Cirrostratus alone; in either case, they are progressively invading the sky, and generally

### **Code Table 8—Continued**

# **Code Table 10**

K

C–7

re re	Technical Specifica- tions	Nontechnical Specifi- cations	Syr	mbol C <sub>M</sub> =Clouds o	f Genera Ac, As, Ns
	\		Code	Technical Specifica-	Nontechnical Specifi-
		A	Fig-	tions	cations
9	Cumulonimbus	Cumulonimbus, the	ure	and the first first start	
	capillatus (often	upper part of which	<u></u>		
	with an anvil),	is clearly fibrous			
	with or without	(cirriform), often in	0	No C <sub>M</sub> clouds	No Altocumulus, Alto
	Cumulonimbus	the form of an anvil,			stratus or Nimbo-
	calvus, Cumulus,	either accompanied		and the second	stratus.
	Stratocumulus,	or not by Cumulo-			and the second states of
1.1	Stratus or	nimbus without anvil	1	Altostratus trans-	Altostratus, the greate
	pannus.	or fibrous upper	1.11	Jucidus.	part of which is semi
	$[a_{1}, a_{2}] = [a_{1}, a_{2}] = [a_{$	part, by Cumulus,		le Anna the Antonio In	transparent; through
		Stratocumulus,		V the second second	this part the sun or
		Stratus or pannus.	. ,		moon may be weakly
		$\sum_{i=1}^{n} a_i = a_i$	i si f		visible as through
1	C <sub>L</sub> clouds invisible	Stratocumulus, Stratus,			ground glass.
	owing to dark-	Cumulus, or Cumu-	. Pa		
, i	ness, fog, blow-	lonimbus invisible	2	Altostratus opacus	Altostratus, the greate
	ing dust or sand,	owing to darkness,	/:	or Nimbostratus.	part of which is suffi
	or other similar	fog, blowing dust or			ciently dense to hid
	phenomena.	sand, or other			the sun or moon, o
	phonomona.	similar phenomena.	1997) 1997 - 1997 1997 - 1997		Nimbostratus.
		Similar pitenomena.	$g_{ij} = \frac{1}{2} (g_{ij} - g_{ij}) + \frac{1}{2} (g_{ij} - g$		TAIIIDOS Gradus.
	· · · · · · · · · · · · · · · · · · ·		3	Altocumulus trans-	Altocumulus, the
		ons which generally exist durin g	a a	lucidus at a	greater part of which
cipita	tion and a short time before ar	nd after.			
		X = X		single level.	is semitransparent,
		$\lambda \to \lambda$			Also and an allowed and
		$\sim$			the various elemen
	Code Ta	ıble 9			of the cloud change
	<ul> <li>The second se Second second sec</li></ul>	$\sim$			of the cloud change only slowly and are
	[WMO Co	de 1600]			of the cloud change
∕mb•	гwмо с₀ ol <b>h</b> =Height above	$\sim$		Databas (after los	of the cloud change only slowly and are all at a single level.
∕mb•	[WMO Co	de 1600]	4	Patches (often len-	of the cloud change only slowly and are all at a single level. Patche (often in the
∕mb•	гwмо с₀ ol <b>h</b> =Height above	de 1600]	4	ticular) of Alto-	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or
	гwмо с₀ ol <b>h</b> =Height above of the Cloud	de 1600] Ground of the Base	4	ticular) of Alto- cumulus translu-	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or fishes) of Altocumu-
ode	гwмо с₀ ol <b>h=H</b> eight above	de 1600]	4	ticular) of Alto- cumulus translu- cidus, continually	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or fishes) of Altocumu- lus, the greater part
	гwмо с₀ ol <b>h</b> =Height above of the Cloud	de 1600] Ground of the Base	4	ticular) of Alto- cumulus translu- cidus, continually changing and	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or fishes) of Altocumu- lus, the greater part of which is semi-
ode	гwмо с₀ ol <b>h</b> =Height above of the Cloud	de 1600] Ground of the Base	4	ticular) of Alto- cumulus translu- cidus, continually changing and occuring at one	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or fishes) of Altocumu- lus, the greater part of which is semi- transparent; the
ode gure	[wMo Co ol <b>h</b> =Height above of the Cloud Height in Feet	de 1600] Ground of the Base Height in Meters	4	ticular) of Alto- cumulus translu- cidus, continually changing and	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or fishes) of Altocumu- lus, the greater part of which is semi- transparent; the clouds occur at one
ode gure 0	тумо со ol <b>h</b> =Height above of the Cloud Height in Feet 0- 149	de 1600] Ground of the Base Height in Meters	4	ticular) of Alto- cumulus translu- cidus, continually changing and occuring at one	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or fishes) of Altocumu- lus, the greater part of which is semi- transparent; the clouds occur at one or more levels and the
ode gure 0 1	wмо со ol <b>h</b> =Height above of the Cloud Height in Feet 0- 149 150- 299	de 1600] Ground of the Base Height in Meters 0- 49 50- 99	4	ticular) of Alto- cumulus translu- cidus, continually changing and occuring at one	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or fishes) of Altocumu- lus, the greater part of which is semi- transparent; the clouds occur at one or more levels and the elements are continu
ode gure 0 1 2	[WMO Co ol <b>h</b> =Height above of the Cloud Height in Feet 0- 149 150- 299 300- 599	de 1600] Ground of the Base Height in Meters 0- 49 50- 99 100- 199	4	ticular) of Alto- cumulus translu- cidus, continually changing and occuring at one	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or fishes) of Altocumu- lus, the greater part of which is semi- transparent; the clouds occur at one or more levels and the elements are continu- ally changing in
ode gure 0 1 2 3	[WMO Co ol h=Height above of the Cloud Height in Feet 0- 149 150- 299 300- 599	de 1600] Ground of the Base Height in Meters 0- 49 50- 99 100- 199 200- 299	4	ticular) of Alto- cumulus translu- cidus, continually changing and occuring at one	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or fishes) of Altocumu- lus, the greater part of which is semi- transparent; the clouds occur at one or more levels and the elements are continu
ode gure 0 1 2 3 4	[WMO Co ol h=Height above of the Cloud Height in Feet 0- 149 150- 299 300- 599 600- 999 1, 000-1, 999	de 1600] Ground of the Base Height in Meters 0- 49 50- 99 100- 199 200- 299 300- 599	4	ticular) of Alto- cumulus translu- cidus, continually changing and occuring at one	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or fishes) of Altocumu- lus, the greater part of which is semi- transparent; the clouds occur at one or more levels and the elements are continu- ally changing in appearance.
ode gure 0 1 2 3 4 5	[WMO Co ol h=Height above of the Cloud Height in Feet 0- 149 150- 299 300- 599 600- 999 1, 000-1, 999 2, 000-3, 499	de 1600] Ground of the Base Height in Meters 0- 49 50- 99 100- 199 200- 299 300- 599 600- 999	4	ticular) of Alto- cumulus translu- cidus, continually changing and occuring at one	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or fishes) of Altocumu- lus, the greater part of which is semi- transparent; the clouds occur at one or more levels and the elements are continu- ally changing in appearance. Semitransparent Alto-
ode gure 0 1 2 3 4 5 6	[WMO Co ol h=Height above of the Cloud Height in Feet 0- 149 150- 299 300- 599 600- 999 1, 000-1, 999 2, 000-3, 499 3, 500-4, 999	de 1600] Ground of the Base Height in Meters 		ticular) of Alto- cumulus translu- cidus, continually changing and occuring at one or more levels.	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or fishes) of Altocumu- lus, the greater part of which is semi- transparent; the clouds occur at one or more levels and the elements are continu- ally changing in appearance.
ode gure 0 1 2 3 4 5 6 7	[WMO Co ol h=Height above of the Cloud Height in Feet 0- 149 150- 299 300- 599 600- 999 1, 000-1, 999 2, 000-3, 499 3, 500-4, 999 5, 000-6, 499	de 1600] Ground of the Base Height in Meters 		ticular) of Alto- cumulus translu- cidus, continually changing and occuring at one or more levels.	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or fishes) of Altocumu- lus, the greater part of which is semi- transparent; the clouds occur at one or more levels and the elements are continually changing in appearance. Semitransparent Alto-
0 1 2 3 4 5 6 7 8	[WMO Co ol h=Height above of the Cloud Height in Feet 0- 149 150- 299 300- 599 600- 999 1, 000-1, 999 2, 000-3, 499 3, 500-4, 999 6, 500-7, 999	de 1600] Ground of the Base Height in Meters 		ticular) of Alto- cumulus translu- cidus, continually changing and occuring at one or more levels. Altocumulus trans- lucidus in bands,	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or fishes) of Altocumu- lus, the greater part of which is semi- transparent; the clouds occur at one or more levels and the elements are continu ally changing in appearance. Semitransparent Alto- cumulus in bands, or
ode gure 0 1 2 3 4 5 6 7	[WMO Co ol h=Height above of the Cloud Height in Feet 0- 149 150- 299 300- 599 600- 999 1, 000-1, 999 2, 000-3, 499 3, 500-4, 999 5, 000-6, 499 8, 000 or higher, or no	de 1600] Ground of the Base Height in Meters 		ticular) of Alto- cumulus translu- cidus, continually changing and occuring at one or more levels. Altocumulus trans- lucidus in bands, or one or more	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or fishes) of Altocumu- lus, the greater part of which is semi- transparent; the clouds occur at one or more levels and the elements are continu ally changing in appearance. Semitransparent Alto- cumulus in bands, or Altocumulus in one
0 1 2 3 4 5 6 7 8	[WMO Co ol h=Height above of the Cloud Height in Feet 0- 149 150- 299 300- 599 600- 999 1, 000-1, 999 2, 000-3, 499 3, 500-4, 999 6, 500-7, 999	de 1600] Ground of the Base Height in Meters 		ticular) of Alto- cumulus translu- cidus, continually changing and occuring at one or more levels. Altocumulus trans- lucidus in bands, or one or more layer of Alto- cumulus trans-	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or fishes) of Altocumu- lus, the greater part of which is semi- transparent; the clouds occur at one or more levels and the elements are continu ally changing in appearance. Semitransparent Alto- cumulus in bands, or Altocumulus in one or more fairly con-
0 1 2 3 4 5 6 7 8	[WMO Co ol h=Height above of the Cloud Height in Feet 0- 149 150- 299 300- 599 600- 999 1, 000-1, 999 2, 000-3, 499 3, 500-4, 999 5, 000-6, 499 8, 000 or higher, or no	de 1600] Ground of the Base Height in Meters 		ticular) of Alto- cumulus translu- cidus, continually changing and occuring at one or more levels. Altocumulus trans- lucidus in bands, or one or more layer of Alto- cumulus trans- lucidus or opacus,	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or fishes) of Altocumu- lus, the greater part of which is semi- transparent; the clouds occur at one or more levels and the elements are continu- ally changing in appearance. Semitransparent Alto- cumulus in bands, or Altocumulus in one or more fairly con- tinuous layers (semi- transparent or
ode gure 0 1 2 3 4 5 6 7 8 9	[WMO Co ol h=Height above of the Cloud Height in Feet 0- 149 150- 299 300- 599 600- 999 1,000-1,999 2,000-3,499 3,500-4,999 5,000-6,499 6,500-7,999 8,000 or higher, or no clouds.	de 1600] Ground of the Base Height in Meters 		ticular) of Alto- cumulus translu- cidus, continually changing and occuring at one or more levels. Altocumulus trans- lucidus in bands, or one or more layer of Alto- cumulus trans- lucidus or opacus, progressively in-	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or fishes) of Altocumu- lus, the greater part of which is semi- transparent; the clouds occur at one or more levels and the elements are continu- ally changing in appearance. Semitransparent Alto- cumulus in bands, or Altocumulus in one or more fairly con- tinuous layers (semi- transparent or opaque), progres-
ode gure 0 1 2 3 4 5 6 7 8 9	[WMO Co ol h=Height above of the Cloud Height in Feet 0- 149 150- 299 300- 599 300- 599 600- 999 1, 000-1, 999 2, 000-3, 499 3, 500-4, 999 5, 000-6, 499 6, 500-7, 999 8, 000 or higher, or no clouds.	de 1600] Ground of the Base Height in Meters 		ticular) of Alto- cumulus translu- cidus, continually changing and occuring at one or more levels. Altocumulus trans- lucidus in bands, or one or more layer of Alto- cumulus trans- lucidus or opacus, progressively in- vading the sky;	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or fishes) of Altocumu- lus, the greater part of which is semi- transparent; the clouds occur at one or more levels and the elements are continu- ally changing in appearance. Semitransparent Alto- cumulus in bands, or Altocumulus in one or more fairly con- tinuous layers (semi- transparent or opaque), progres- sively invading the
ode gure 0 1 2 3 4 5 6 7 8 9 Vortes respon	[WMO Co ol h=Height above of the Cloud Height in Feet 0- 149 150- 299 300- 599 300- 599 600- 999 1, 000-1, 999 2, 000-3, 499 3, 500-4, 999 5, 000-6, 499 6, 500-7, 999 8, 000 or higher, or no clouds.	de 1600] Ground of the Base Height in Meters 		ticular) of Alto- cumulus translu- cidus, continually changing and occuring at one or more levels. Altocumulus trans- lucidus in bands, or one or more layer of Alto- cumulus trans- lucidus or opacus, progressively in- vading the sky; these Altocumu-	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or fishes) of Altocumu- lus, the greater part of which is semi- transparent; the clouds occur at one or more levels and the elements are continu- ally changing in appearance. Semitransparent Alto- cumulus in bands, or Altocumulus in one or more fairly con- tinuous layers (semi- transparent or opaque), progres- sively invading the sky; these Altocumu-
ode gure 0 1 2 3 4 5 6 7 8 9	[WMO Co         ol       h=Height above of the Cloud         Height in Feet         0-       149         150-       299         300-       599         600-       999         1,000-1,999       1         2,000-3,499       3,500-4,999         3,500-4,999       6,500-7,999         6,500-7,999       8,000 or higher, or no clouds.         : (1) The heights (in feet) giver in WMO Codade (i.e., code figures 90-99) of term "height above ground"	de 1600] Ground of the Base Height in Meters 		ticular) of Alto- cumulus translu- cidus, continually changing and occuring at one or more levels. Altocumulus trans- lucidus in bands, or one or more layer of Alto- cumulus trans- lucidus or opacus, progressively in- vading the sky; these Altocumu- lus clouds gen-	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or fishes) of Altocumu- lus, the greater part of which is semi- transparent; the clouds occur at one or more levels and the elements are continu- ally changing in appearance. Semitransparent Alto- cumulus in bands, or Altocumulus in one or more fairly con- tinuous layers (semi- transparent or opaque), progres- sively invading the sky; these Altocumu- lus cloud generally
0 1 2 3 4 5 6 7 8 9 0 0 0 respor	[WMO Co of h=Height above of the Cloud Height in Feet 0- 149 150- 299 300- 599 600- 999 1,000-1,999 2,000-3,499 3,500-4,999 5,000-6,499 6,500-7,999 8,000 or higher, or no clouds. : (1) The heights (in feet) giver d to those given in WMO Co cade (i.e., code figures 90-99) of sterm "height above ground" e official aerodrome elevation	de 1600] Ground of the Base Height in Meters 		ticular) of Alto- cumulus translu- cidus, continually changing and occuring at one or more levels. Altocumulus trans- lucidus in bands, or one or more layer of Alto- cumulus trans- lucidus or opacus, progressively in- vading the sky; these Altocumu- lus clouds gen- erally thicken as	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or fishes) of Altocumu- lus, the greater part of which is semi- transparent; the clouds occur at one or more levels and th elements are continu ally changing in appearance. Semitransparent Alto- cumulus in bands, or Altocumulus in one or more fairly con- tinuous layers (semi- transparent or opaque), progres- sively invading the sky; these Altocumu
ode ure 0 1 2 3 4 5 6 7 8 9	[WMO Co         ol       h=Height above of the Cloud         Height in Feet         0-       149         150-       299         300-       599         600-       999         1,000-1,999       1         2,000-3,499       3,500-4,999         3,500-4,999       6,500-7,999         6,500-7,999       8,000 or higher, or no clouds.         : (1) The heights (in feet) giver in WMO Codade (i.e., code figures 90-99) of term "height above ground"	de 1600] Ground of the Base Height in Meters 		ticular) of Alto- cumulus translu- cidus, continually changing and occuring at one or more levels. Altocumulus trans- lucidus in bands, or one or more layer of Alto- cumulus trans- lucidus or opacus, progressively in- vading the sky; these Altocumu- lus clouds gen-	of the cloud change only slowly and are all at a single level. Patche (often in the form of almonds or fishes) of Altocumu- lus, the greater part of which is semi- transparent; the clouds occur at one or more levels and th elements are continu ally changing in appearance. Semitransparent Alto- cumulus in bands, or Altocumulus in one or more fairly con- tinuous layers (semi- transparent or opaque), progres- sively invading the sky; these Altocumu lus cloud generally



### Code Table 11-Continued

1<u>. .</u>

### Code Table 12

Code Fig- ure	Technical Specifica- tions	Nontechnical Specifications	Symbo	[WMO Code 0200] ol <b>a</b> = Characteristic of Pressure Tendency During the 3 Hours Preceding the
F	wassh 459 shows	manin a denser es e		Time of Observation
5	reach 45° above	growing denser as a		
	the horizon.	whole, but the con-	Code	
		tinuous veil does	Fig-	Description
		not reach 45° above	ure	Description
		the horizon.		
6	Cirrus (often in	Cirrus (often in bands	0	Increasing, then decreasing; atmospheric pres
Ū,	bands) and Cirro-	converging towards	Ū	sure the same or higher than 3 hrs. ago.
	stratus, or Cirro-	one or two opposite		sure one same or ingher man o ms. ago.
	stratus alone, pro-	points of the hori-	-	Thomassing then stead )
		zon) and Cirro-	1	Increasing, then steady;
	gressively invad-			or increasing, then in-
•	ing the sky; they	stratus, or Cirro-		creasing more slowly Atmospheric pres
	generally thicken	stratus alone; in	2	Increasing (steadily or sure now higher
	as a whole; the	either case, they are		unsteadily) than 3 hours
	continuous veil	progressively invad-	3	Decreasing or steady, ago.
	extends more	ing the sky, and		then increasing; or in-
	than 45° above	generally growing		creasing, then increas-
	the horizon, with-	denser as a whole;		ing more rapidly
	out the sky being	the continuous veil		-ng more repair, )
	totally covered.	extends more than	4	Steady, atmospheric pressure the same as
	totany covercu.	45° above the hori-		
		-		hrs. ago.
		zon, without the sky	<b>-</b>	<b>D</b>
		being totally covered.	5	Decreasing, then increasing; atmospheric pres
7		TT '1 C C' I I		sure the same or lower than 3 hrs. ago.
4	Cirrostratus cover-	Veil of Cirrostratus		
	ing the whole sky.	covering the celes-	6	Decreasing, then steady;
		tial dome.		or decreasing then de-
				creasing more slowly
8	Cirrostratus not	Cirrostratus not pro-	7	Decreasing (steadily or Atmospheric pres
	progressively in-	gressively invading		unsteadily) sure now lower
	vading the sky	the sky and not	8	Steady or increasing, then than 3 hours
	and not entirely	completely covering		decreasing; or decreas- ago.
	covering it.	the celestial dome.		ing then decreasing
				more rapidly
9	Cirrocumulus alone,	Cirrocumulus alone, or		
	or Cirrocumulus	Cirrocumulus accom-	9	Indicator figure
	predominant	panied by Cirrus or		
	among the C <sub>H</sub>	Cirrostratus, or both,		
	clouds.	but Cirrocumulus is		
	ciouds.			
		predominant.	NO	TE: Code figure 9 is used
20	a , ,		110	
0	$C_H$ clouds invisible	Cirrus, Cirrocumulus,		to signify that the
124	owing to dark-	and Cirrostratus in-		amount of pressure
	ness, fog, blowing	visible owing to		tendency is the
	dust or sand or	darkness, fog, blow-		OF PRANTE TE PILE
	other similar phe-	ing dust or sand or		24-hour pressure
•	nomena, or be-	other similar phe-		change $(p_{24}p_{24})$
	cause of a con-	nomena, or more		24- 24
•	tinuous layer of	often because of the		(See Code Table 14).
	lower clouds.	presence of a con-		
	ad it de Cableada	tinuous layer of		· · · · · · · · · · · · · · · · · · ·
		lower clouds.		
		TOWEL GLOUDES.	· · · · · · · · · · · · · · · · · · ·	

# **Code Table 13**

### Symbol pp=Amount of 3-Hour Pressure Tendency

### **Code Table 14**

#### [WMO Code 470]

### Symbol $p_{24}p_{24}$ =Amount of Pressure Change at the Station Level During Past 24 Hours

		1	<u> </u>	1	<u> </u>	$\mathbf{th}$	e Station Level During Past 24 Hours
Code Figure	Inches of Mercury	Milli- bars	Code Figure	Inches of Mercury	Milli- bars	Code Figure	Amount of Pressure Change
÷		1					have been a second and the second
00	0. 000	0.0					
02	0, 005	0.2		0. 155	5.2	00	No change; pressure same as 24 hours ago
03	0. 010	0.3	$  $ \54	0. 160	5.4	01	Pressure has risen 0.1 mb
05	0.015	0.5	56	0. 165	5.6	02	" " " 0.2 mb
07	0. 020	0.7	58	0. 170	5.8	03	/""" 0.3 mb
08	0. 025	0.8	59	0. 175	5.9	04	/ " " " 0.4 mb
				X = 2		05	""""0.5 mb
10	0. 030	1. 0	61	0. 180	6.1	06	" " " 0.6 mb
12	0. 035	1.2	63	0, 185	6.3	07/	" " " 0.7 mb
14	0. 040	1.4	64	0. 190	6.4	08	" " " 0.8 mb
15	0.045	1.5	66	0. 195	6.6	/09	" " " 0.9 mb
17	0. 050	1.7	68	0. 200	6.8	- / 10	" " " <b>1.0</b> mb
						11	" " <b>1.1 mb</b>
19	0. 055	1.9	69	0. 205	6.9	/ 12	" " " <b>1.2</b> mb
20	0. 060	2.0	71	0. 210	7.1	etc.	etc.
22	0. 065	2.2	73	0. 215	7:3/	38	" " " <b>3.8</b> mb
24	0.070	2. 2	75	0. 220	7.5	39	"""" <b>3.9</b> mb
25	0. 075	2. 5	76	0. 225	7./6	40	" " <u>4</u> mb
20	0.015	2.0	10	0. 440	1,10 \	41	" " <b>" 5 mb</b>
07	0 000	0.7	70	0.000	1 0	42	" " " 6 mb
27	0. 080	2.7	78	0. 230	7.8	43	" " <b>7</b> mb
29	0. 085	2.9	80	0. 235	8.0	44	" " <b>8</b> mb
30	0, 090	3.0	81	0. 240	8.1	45	" " <b>9 mb</b>
32	0. 095	3.2	83	0. 245	8.3	46	" " <b>10</b> mb
34	0. 100	3.4	85	0. 250	8.5	40	"""11 mb
~ ~ ~						48	" " " <b>12</b> mb
36	0. 105	3.6	86	0. 255	8.6	48 59	" " 12 mb
37	0. 110	3. 7	88	0/260	8.8		To moor more
39	0. 115	3. 9	90	0. 265	9. 0	50	Not used
41	0. 120	4.1	91	0. 270	9.1	51	Pressure has fallen 0.1 mb
42	0. 125	4.2	93	/ 0. 275	9.3	52	0
						53	0.0 110
44	0, 130	4.4	95	0. 280	9.5	54	0.1 100
46	0. 135	4.6	97/	0.285	9.7	55	0.0 mb
47	0. 140	4.7	98	0. 290	9.8	56	0.0 MD
49	0. 145	4.9				57	" " <b>0.7</b> mb
51	0. 150	5.1				58	" " 0.8 mb
	· · · · · · · · ·		/	d. 4		59	" " " 0.9 mb
÷			/		•	60	" " 1.0 mb
NOTES:	three-hour per	ind need in	computing	the tendences	e the full	61	" " " <b>1.1</b> \mb
	s preceding the				o uno mun	62	" " " 1.2 mb
	en the amount				exceeds	etc.	etc.
.9 mbs., t	the group 99pp					88	" " " <b>3.8</b> mb
dTdapp	group.					89	" " <b>3.9</b> mb
						90	" " " 4 mb



FMH No. 2

EFFECTIVE JAN. 1, 1969

mb

mb

 $\mathbf{mb}$ 

 $\mathbf{5}$ 

6

 $\mathbf{7}$ 

8 mb

9 mb

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.. ..

a i a

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ii

"

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16

91

92

93

94 95

#### **Code Table 14**

[WMO Code 470]

Symbol p<sub>24</sub>p<sub>24</sub>=Amount of Pressure Change at the Station Level During Past 24 Hours

Code Figure	Amount of Pressure Change
00	No change; pressure same as 24 hours ago
01	Pressure has risen 0.1 mb
02	" " " 0.2 mb
02	" " " 0.3 mb
03	" " " 0.4 mb
04	" " " 0.5 mb
06	·· ·· ·· 0.6 mb
07	" " " 0.7 mb
07	" " " 0.8 mb
09	0.0 mb
	""""0.9 mb """"1.0 mb
10	1.0 mD
11	1.1 1110
12	1.2 110
etc.	etc.
: 38	" " " <b>3.8</b> mb
39	"""" 3.9 mb
40	" " " 4 mb
41	" " " 5 mb
42	" " " 6 mb
43	" " " <b>7</b> mb
44	" " " 8 mb
45	"""""9 mb
46	" " 10 mb
47	" " " 11 mb
48	" " " 1 <b>2</b> mb
59	" " 13 mb or more
50	Not used
51	Pressure has fallen 0.1 mb
52	" " " 0.2 mb
53	" " " 0.3 mb
54	" " 0.4 mb
55	"
56	" " 0.6 mb
57	" " " 0.7 mb
58	" " <b>0.8</b> mb
59	" " " 0.9 mb
60	" " " 1.0 mb
61	<i>u u u</i> 1.1 mb
62	" " " 1.2 mb
etc.	etc.
88	" " " <b>3.8</b> mb
89	" " " <b>3.9</b> mb
90	" " 4 mb
91	"""5 mb
91	" " " 6 mb
	"""" 7 mb
93	" " " 8 mb
94	0 110
95	""""9 mb
96	Pressure has fallen 10 mb
97	""""11 mb
98	""""""""""""""""""""""""""""""""""""""
99	" " 13 mb or more

### Code Table 16

Symbol  $\mathbf{R}_t$ =Time Precipitation Began or Ended <sup>1</sup>

Code Fig- ure	Time Began or Ended	Code Fig- ure	Time Began or Ended
	1 A 1 A 1		
· 0 ·	No precipitation.	6	5 to 6 hours ago.
1	Less than 1 hr. ago	7	6 to 12 hours ago
2	1 to 2 hours ago.	8	More than 12
.3	2 to 3 hours ago.		hours ago.
4	3 to 4 hours ago.	9	Unknown.
5	4 to 5 hours ago.		

<sup>1</sup> In relation to the "official time of observation." (NOTE: This Code Table is used by the United States and Canada.)

#### Code Table 18

### [WMO Code 541]

Symbol **D<sub>L</sub>**=Direction From Which C<sub>L</sub> Clouds Are Moving

Symbol  $D_M = D$ irection From Which  $C_M$  Clouds Are Moving

	Code Fig- ure	Direction
	. 0	Stationary
	. 1	Cloud coming from NE
	2	u sa u su E
	3	" " <b>SE</b>
1	4	" " S
	5	" " <b>SW</b>
	. 6	(C) (C) (C) W
	7	" " <b>NW</b>
	8	$\boldsymbol{u}_{1}$ , $\boldsymbol{u}_{2}$ , $\boldsymbol{u}_{1}$ , $\boldsymbol{N}_{1}$ , $\boldsymbol{v}_{2}$ , $\boldsymbol{v}_{3}$ , $\boldsymbol{v}_{4}$ , $\boldsymbol{v}_{3}$ , $\boldsymbol{v}_{4}$ , $v$
	9	No definite direction, or unknown

# Code Table 19 [WMO Code 0500]

Symbol C=Genus (Type) of Cloud

#### Type of Cloud

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

Code Figure

# Code Table 20 [WMO Code 1677]

Code Table 20—Continued

Symbol	h <sub>s</sub> h <sub>s</sub> =Height of Base of Cloud Layer
•	Whose Type is Indicated by C

Symbo	[WMO Code le ol h <sub>s</sub> h <sub>s</sub> =Height of В Whose Туре	-		Height in Feet	Height in Meters	
Code	Haight in Fast	Hoight in Matan	45	4,500	1,350.	
Figure	Height in Feet	Height in Meters	46	4,600	1,380.	
riguit			47	4,700	1,410.	
			48	4,800	1,440.	
00	Less than 100	Less than 30.	49	4,900	1,470.	
01	100	30.	20	1,000	1,110.	
02	200	60 <b>.</b>	50	5,000	1 500	
03	300	90.	$50 \\ 51$	Not specified	1,500.	
04	400	90. 120.	51 52		*	
05				Not specified		
	500	150.	53	Not specified		
06	600	180.	54	Not specified		
07	700	210.	55	Not specified	-	
08	800	240.	56	6,000	1,800.	
09	900	270.	57	7,000	2,100.	
			58	8,000	2,400.	
10	1,000	300.	59	9,000	2,700.	
11	1,100	330.				
12	1,200	360.	60	10,000	3,000.	
13	1,300	390.	61	11,000	3,300.	
14	1,400	420.	62	12,000	3,600.	
15	1,500	450.	63	13,000	3,900.	
16	1,600	480.	64	14,000		
17	1,700	430. 510.	65	14,000	4,200.	
18	1,900			15,000	4,500.	
	1,800	540.	66	16,000	4,800.	
19	1,900	570.	67	17,000	5,100.	
			68	18,000	5,400.	
20	2,000	600.	69	19,000	5,700.	
21	2,100	630.				
22	2,200	660.	70	20,000	6,000.	
23	2,300	690.	71	21,000	6,300.	
24	2,400	720.	72	22,000	6,600.	
25	2,500	750.	73	23,000	6,900.	
			74	24,000	7,200.	
26	2,600	780.	75	25,000	7,500.	
27	2,700	810.	76	26,000	7,800.	
<b>28</b>	2,800	840.	77	27,000	8,100.	
29	2,900	870.	78			
	2,000	810.		28,000	8,400.	
30	2 000	000	79	29,000	8,700.	
	3,000	900.				
31	3,100	930.	80	30,000	9,000.	
32	3,200	960.	81	35,000	10,500.	
33	3,300	990.	82	40,000	12,000.	
34	3,400	1,020.	83	45,000	13,500.	
35	3,500	1,050.	84	50,000	15,000.	
36	3,600	1,080.	85	55,000	16,500.	
37	3,700	1,110.	86	60,000	18,000.	
38	3,800	1,140.	87	65,000	19,500.	
39	3,900	1,170.	88	70,000	21,000.	
			89	Higher than 70,000	Higher than 21,000.	
40	4,000	1,200.	บฮ	IIIguel 011211 / 0,000	man 21,000.	
41	4,100	1,230.	:	0.140	0.40	
42	4,200		90	0-149	0-49.	
42		1,260.	91	150-299	50-99.	
43 44	4,300 4,400	1,290.	92 93	300-599	100-199.	
44	44111	1 290	0.0	600-999	200-299.	





### **Code Table 14—Continued**

Code Figure	Amount of Pressure Change
96	Pressure has fallen 10 mb
97	" " " 11 mb
98	" " <b>12</b> mb
99	" " " 13 mb or more
1 1 - 1 - 1	

# Code Table 15

#### Symbol RR = Amount of Precipitation

(In 6-hour period preceding the actual time of observation)

Code Fig-	Amount	Code Fig-	Amount	Code Fig-	Amount
ure		ure		ure	$\sum_{i=1}^{n}$
			<u> </u>		
00	Trace 1	07	.07 inch.	97	.97\inch.
01	.01 inch.	08	.08 inch.	. 98	.98 inch.
02	.02 inch.	09	.09 inch.	99	.99 inch.
03	.03 inch.	10	.10 inch.	00	1.00.2
04	.04 inch.	11	.11 inch.	01	1.01.2
05	.05 inch.	etc.	etc.	02	1.02.2
06	.06 inch.	96	.96 inch.	etc.	etc.

<sup>1</sup> A trace of precipitation is an amount generally considered too small to measure; i.e., less than 0.005 inch.

<sup>2</sup> When the amount of precipitation is 1.00 inch or more, the number of whole inches is reported by a plain language word inserted in the message immediately following the **7RRR**<sub>1</sub>s group.

### Code Table 16

Symbol  $\mathbf{R}_t$ =Time Precipitation Began or Ended <sup>1</sup>

Code Fig- ure	Time Began or Ended	Code Fig- ure	Time Began or Ended
0	No precipitation.	6	5 to 6 hours ago.
1	Less than 1 hr. ago	7	6 to $12$ hours ago.
2	1 to 2 hours ago.	8	More than 12
3	2 to 3 hours ago.		hours ago.
4	3 to 4 hours ago.	9	Unknown.
5	4 to 5 hours ago.		

<sup>1</sup> In relation to the "official time of observation." (NOTE: This Code Table is used by the United States and Canada.)

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### **Code Table 17**

# [WMO Code 485] Symbol s=Total Accumulated Depth of Snow

(On ground at the actual time of observation)

Code Fig- ure	Depth of Snow on Ground	Code Fig- ure	Depth of Snow on Ground	
$\begin{array}{c} 0\\ 1\\ 2\\ 3\\ 4\end{array}$	None.	5	5 inches.	
	1 inch.	6	6 inches.	
	2 inches.	7	7 inches.	
	3 inches.	8	8 inches or more.	
	4 inches.	9	Less than 0.5 inch.	

\*NoTE. <0.5 inch of snow and/or ice on ground is considered a TRACE for synoptic coding purposes.

### Code Table 18

[WMO Code 541] Symbol D<sub>L</sub>=Direction From Which C<sub>L</sub> Clouds Are Moving

 $\begin{array}{c} \text{Symbol } \mathbf{D}_{\mathbf{M}} = \text{Direction From Which } \mathbf{C}_{\mathbf{M}} \text{ Clouds} \\ \text{Are Moving} \end{array}$ 

Code Fig- ure	Direction
0	Stationary
1	Cloud coming from NE
2	<i>u u u</i> E
3	" " <u>SE</u>
4	u u u g
5	" " <b>SW</b>
6	u u u w
3	<i>"</i> " <b>NW</b>
8	" " <mark>N</mark>
9	No definite direction, or unknown

### **Code Table 19**

[WMO Code 0500]

Symbol C=Genus (Type) of Cloud

Code Fig-	Type of Cloud
ure	$[1, \dots, n] = \frac{1}{2} \sum_{i=1}^{n} \frac{1}{i} \sum_{i$
0	Cirrus Ci
1	Cirrocumulus Cc
2	Cirrostratus Cs
3	Altocumulus Ac
4	Altostratus As
5	Nimbostratus Ns
6	Stratocumulus Sc
7	Stratus St
8	Cumulus Cu
9	Cumulonimbus Cb
· ./	Cloud not visible owing to darkness, fog, duststorm, sandstorm, or other analogous
	phenomena.



## Code Table 20—Continued

Code Figure	Height in Feet	Height in Meters
94 95 96 97	1,000–1,999 2,000–3,499 3,500–4,999 5,000–6,499	300-599. 600-999. 1,000-1,499. 1,500-1,999.
98	6,500-7,999	2,000-2,499.
	8,000 or higher, or no clouds.	2,500 or higher, or no clouds.

Notes.—(A) If the observed height is between two of the reportable heights as given in the table, the code figure for the lower reportable height will be reported when code figures 00 to 89, inclusive, are involved.

(B) The 90-99 decade should never be used for aeronautical purposes or in special weather reports from ships.

#### Code Table 21

[WMO Code 483]

Symbol  $S_P S_P$ =Special Phenomena Code, General Description

Code Fig- ure	"General" description with "detailed" code used (Symbol of detailed code shown in parentheses)
	00-09: Ground and Miscellaneous Phenomena
00	Average depth of deepest snowdrifts (in feet). (nn)
01	Depth of newly fallen snow during past 6 hours (in whole inches). (nn)
02	Water equivalent of snow and/or ice on ground (tenths of an inch). (nn)
03	Water equivalent of snow and/or ice on ground (in whole inches). (nn)
04	Total amount of snow and/or ice on ground (in whole inches). (nn)
05	State of ground. (EE)
06	Frost. (tt, zz)
07	Glaze, average rate of accrual per hour (in tenths of an inch). (nn)
08	State of sea, or Period of sea swell. $(S_{B}S_{B} \text{ or } K_{D}K_{D})$
09	Water temperature in whole degrees (Faren- heit or Celsius). (nn)
	10–15: Clouds
10	Direction of clouds from station, or clouds. $((D_sD_s \text{ or } zz)$
11	
12	
13	
14	Nonpersistent contrails; time first observed. (tt)
15	Persistent contrails; time first observed. (tt)

**Code Table 21—Continued** 

Code Fig- ure	"General" description with "detailed" code used (Symbol of detailed code shown in parentheses)
	16–19: Atmospheric Pressure and Fronts
16	Atmospheric pressure reduced to mean sea level, lowest in past 6 hours (in "tens" and
17	"units" of mbs.). (nn) Time of lowest pressure, or Barometric stabil- ity. (tt or zz)
18	Time front passed station, or Front. (tt or zz)
19	20–29: Wind Data
20	Direction of maximum wind in tens of degrees
	(dd)
21 22	Speed of maximum wind. (ff)
22 23	Speed of peak gusts. (ff) Average speed of prevailing wind during past
04	6 hours. (ff)
24	Prevailing wind direction during past 6 hours. (dd)
<b>25</b>	Wind direction during past hour, or Wind direction 1 hour ago. (zz or dd)
<b>2</b> 6	Wind speed during past hour. (zz)
27	Time of highest wind. (tt)
28	Pronounced clockwise (veering) shift in wind direction. (tt, zz)
29	Pronounced counterclockwise (backing) shift
	in wind direction. (tt, zz)
	30–34: Fog and smoke
30	Fog; direction or variability. $(D_sD_s \text{ or } zz)$
31	Fog began. (tt)
32 33	Fog ended. (tt) Fog bank in distance; direction or variability
00	$(D_sD_s \text{ or } zz)$
34	Smoke; direction or variability. $(D_s D_s \text{ or } zz)$
	35-39: Blowing Phenomena
35 36	Blowing dust (or sand), blowing snow. (tt, zz)
37	Drifting dust (or sand), drifting snow. (tt, zz)
38	Dust whirls; time began or variability. (tt or zz)
39	Dust whirls; time ended or variability. (tt or zz)
	40–49: Visibility
40	Visibility; time of change, or variability. (tt or zz)
41 4 <b>2</b>	Visibility to NE. (VV) Visibility to E. (VV)

**Code Table 21—Continued** 

Code Fig- ure	"General" description with "detailed" code used (Symbol of detailed code shown in parentheses)
	40–49: Visibility—Continued
43	Visibility to SE. (VV)
44	Visibility to S. (VV)
45	Visibility to SW. (VV)
46	Visibility to W. (VV)
47	Visibility to NW. $(\dot{V}V)$
48	Visibility to N. (VV)
49	$\sim$ 1.5 $\sim$ 1
	59–79: Unassigned
	80-89: Reserved for National Use
	90–99: Clouds
9	Direction from which $C_L$ , $C_M$ , $C_H$ clouds are
	moving $(D_L, D_M, D_H)$ .
	To report cloud directions, the Special Phe- nomena group becomes 99D <sub>L</sub> D <sub>M</sub> D <sub>H</sub> .

#### **Code Table 22**

Symbol  $s_p s_p$ =Special Phenomena Table, Detailed Description

Several individual code tables are required to report data for  $s_p s_p$ . For ease of identification the individual  $s_p s_p$  code tables are considered to be parts of one general  $s_p s_p$  code table (No. 22) and they are designated by letter (e.g., 22a, 22b, 22c, etc.). The individual  $s_p s_p$ code tables are:

Code Table		Symbol
22a	Units of Specific Value	
22a 22b	State of Ground	nn EE
220 22c	Time	tt
22d	Variation in Phenomena	ZZ
22e	State of Sea	S <sub>a</sub> S <sub>a</sub>
22f	Period of Sea Swell	K <sub>p</sub> K <sub>p</sub>
22g	Direction from Station	$D_{s}D_{s}$
22h	Wind Speed	ff
22i	Direction of Cloud Move-	$D_L$ , $D_M$ , and
	ment.	D <sub>H</sub> .
		· · · ·

#### Code Table 22a [WMO Code 468]

Code Figure	Value (depending on "general" code figure used)
00	Zero or less than 1 unit.
01	1; 10; 100; or 1,000.
02	2; 20; 200; or 2,000.
Etc.	Etc.
12	12; 120; 1,200; or 12,000.
13	13; 130; 1,300; or 13,000.
Etc.	Etc.
98	98; 980; 9,800; or 98,000.
1 99	99 or more; 990 or more; 9,900 or more;
	99,000 or more.

<sup>1</sup>When the value to be coded for symbol "nn" is "more than 99, etc." the appropriate number of  $9S_pS_p$ ng groups will be used; i.e., in the first group (or groups) 99 will be reported for "nn" and the amount in excess of 100 (or 200, etc., as appropriate) will be reported for "nn" in the last group of the series. For example: 100 inches of snow on ground would be coded 90499 90400; 105 inches, 90499 90405; 210 inches, 90499 90499 90410, etc.

(Note: In the example given in footnote 1, immediately above, WMO Region IV has specified that the depth of snow be given in centimeters rather than inches. In this case the United States will continue national custom and report the depth of snow on ground in inches. However, those using reports from other countries should be alert to the possibility that depths of snow on ground may be reported in centimeters.)

#### Code Table 22b

[WMO Code 0900] Symbol E=State of Ground (0 to 9)

Symbol EE=State of Ground (00 to 09)

ode gure	State of Ground
00	Surface of ground dry (no appreciable amount of dust or loose sand).
01	Surface of ground moist.
02	Surface of ground wet (standing water in small or large pools on surface).
03	Surface of ground frozen.
04	Glaze or ice on ground, but no snow or melting snow.
05	Snow or melting snow (with or without ice) covering less than one-half of ground.
06	Snow or melting snow (with or without ice) covering more than one-half of ground but ground not completely covered.
07	Snow or melting snow (with or without ice) covering ground completely.
08	Loose dry snow, dust or sand, covering more than one-half of ground (but not completely).
09	Loose dry snow, dust or sand covering ground completely.

(a) Where dust or sand is reported and the temperature is below 0° C., the word DUST or SAND is added at the end of the message.
(b) The definitions in the code for E for numbers 0 to 3 apply to repre-

(c) In stances the highest code figures applicable will be reported.

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### Code Table 21-Continued

Code Fig- ure	"General" description with "detailed" code used (Symbol of detailed code shown in parentheses)
	40–49: Visibility—Continued
43	Visibility to SE. (VV)
44	Visibility to S. (VV)
45	Visibility to SW. (VV)
46	Visibility to W. (VV)
47	Visibility to NW. (VV)
48	Visibility to N. (VV)
49	물건 전에 물건을 많이 많이 가는 것을 수 없다.
	59–79: Unassigned
	80-89: Reserved for National Use
	90–99: Clouds
9	<ul> <li>Direction from which C<sub>L</sub>, C<sub>M</sub>, C<sub>H</sub> clouds are moving (D<sub>L</sub>, D<sub>M</sub>, D<sub>H</sub>).</li> <li>To report cloud directions, the Special Phe-</li> </ul>
	nomena group becomes $99D_LD_MD_H$ .

### **Code Table 22**

### Symbol $s_p s_p$ =Special Phenomena Table, Detailed Description

Several individual code tables are required to report data for  $s_p s_p$ . For ease of identification the individual  $s_p s_p$  code tables are considered to be parts of one general  $s_p s_p$  code table (No. 22) and they are designated by letter (e.g., 22a, 22b, 22c, etc.). The individual  $s_p s_p$ code tables are:

Code Table		Symbol
	TT	
22a	Units of Specific Value	nn
22b	State of Ground	EE
22c	Time	tt
22d	Variation in Phenomena	ZZ
22e	State of Sea	$S_sS_s$
22f	Period of Sea Swell	K <sub>n</sub> K <sub>n</sub>
22g	Direction from Station	$D_s D_s$
22h	Wind Speed	ff
22i	Direction of Cloud Move-	$D_L$ , $D_M$ , and
	ment.	$\widetilde{\mathbf{D}}_{\mathbf{H}}$ .

#### Code Table 22a [WMO Code 468]

Symphol main I Imit	a of Concelle	<b>T7 - 1</b> ' /	$( \Delta \Delta - \Delta \Delta )$	
$-\infty v m co m = v m c$	s of specific.	vanie (	тир-чч	i .
Symbol nn = Unit	o or opounio	r un u v	(0000)	

Code	Value (depending on "general" code figure
Figure	used)
00	Zero or less than 1 unit.
01	1; 10; 100; or 1,000.
02	2; 20; 200; or 2,000.
Etc.	Etc.
12	12; 120; 1,200; or 12,000.
13	13; 130; 1,300; or 13,000.
Etc.	Etc.
98	98; 980; 9,800; or 98,000.
199	99 or more; 990 or more; 9,900 or more;
	99,000 or more.

<sup>1</sup>When the value to be coded for symbol "nn" is "more than 99, etc." the appropriate number of  $9S_pS_pnn$  groups will be used; i.e., in the first group (or groups) 99 will be reported for "nn" and the amount in excess of 100 (cr 200, etc., as appropriate) will be reported for "nn" in the last group of the series. For example: 100 inches of snow on ground would be coded 90499 90400; 105 inches, 90499 90405; 210 inches, 90499 90499 90410, etc.

(NOTE: In the example given in footnote 1, immediately above, WMO Region IV has specified that the depth of snow be given in centimeters rather than inches. In this case the United States will continue national custom and report the depth of snow on ground in inches. However, those using reports from other countries should be alert to the possibility that depths of snow on ground may be reported in centimeters.)

#### Code Table 22b

[WMO Code 0900]

Symbol E=State of Ground (0 to 9) Symbol EE=State of Ground (00 to 09)

Code Figure	State of Ground
00	Surface of ground dry (no appreciable amount of dust or loose sand).
01	Surface of ground moist.
02	Surface of ground wet (standing water in small or large pools on surface).
03	Surface of ground frozen.
04	Glaze or ice on ground, but no snow or melting snow.
05	Snow or melting snow (with or without ice) covering less than one-half of ground.
06	Snow or melting snow (with or without ice) covering more than one-half of ground but ground not completely covered.
07	Snow or melting snow (with or without ice) covering ground completely.
08	Loose dry snow, dust or sand, covering more than one-half of ground (but not completely).
09	Loose dry snow, dust or sand covering ground completely.

(a) Where dust or sand is reported and the temperature is below 0° C., the word DUST or SAND is added at the end of the message.
(b) The definitions in the code for E for numbers 0 to 3 apply to representative bare ground and numbers 4 to 9 to an open representative area.
(c) In all instances the highest code figures applicable will be reported.



### Code Table 20—Continued

Code Figure	Height in Feet	Height in Meters
94	1,000–1,999	300–599.
95	2,000-3,499	600-999.
96	3,500-4,999	1,000–1,499.
97	5,000-6,499	1,500-1,999.
98	6,500-7,999	2,000-2,499.
99	8,000 or higher, or no	2,500 or higher, or no
	clouds.	clouds.
	N.	

Notes.-(A) If the observed height is between two of the reportable heights as given in the table, the code figure for the lower reportable height will be reported when code figures 00 to 89, inclusive, are involved. (B) The 90-99 decade should never be used for aeronautical purposes or in special weather reports from ships.

#### **Code Table 21**

[WMO Code 483]

Symbol  $S_PS_P$ =Special Phenomena Code, Gen<sub>7</sub> eral Description

Code Fig- ure	"General" description with "detailed" code used (Symbol of detailed code shown in parentheses)
	00-09: Ground and Miscellaneous Phenomena
00	Average depth of deepest snowdrifts (in feet).
01	Depth of newly fallen snow during past 6 hours (in whole inches). (nn)
02	Water equivalent of snow and/or ice on ground (tenths of an inch). (nn)
03	Water equivalent of snow and/or ice on ground (in whole inches). (nn)
04	Total amount of snow and/or ice on ground (in whole/inches). (nn)
05	State of ground. (EE)
06	Frost. (tt, zz)
07	Glaze, average rate of accrual per hour (in
	tenths of an inch). (nn)
08 /	State of sea, or Period of sea swell. $(S_sS_s \text{ or } K_pK_p)$
09	Water temperature in whole degrees (Faren- heit or Celsius). (nn)
	10–15: Clouds
10	Direction of clouds from station, or clouds. $((D_sD_s \text{ or } zz)$
11	
12	
13	
14	Nonpersistent contrails; time first observed. (tt)
15	Persistent contrails; time first observed. (tt)
THE PARTY OF	NUT VE TAN 1 1060

Code Table 21-Continued

"General" description with "detailed" code used (Symbol of detailed code shown in parentheses)
16–19: Atmospheric Pressure and Fronts
Atmospheric pressure reduced to mean sea level, lowest in past 6 hours (in "tens" and "units" of mbs.). (nn)
Time of lowest pressure, or Barometric stabil- ity. (tt or zz)
Time front passed station, or Front. (tt or zz)
20-29: Wind Data
Direction of maximum wind in tens of degrees (dd)
Speed of maximum wind. (ff) Speed of peak gusts. (ff)
Average speed of prevailing wind during past 6 hours. (ff)
Prevailing wind direction during past 6 hours. (dd)
Wind direction during past hour, or Wind direction 1 hour ago. (zz or dd)
Wind speed during past hour. (zz)
Time of highest wind. (tt)
Pronounced clockwise (veering) shift in wind direction. (tt, zz)
Pronounced counterclockwise (backing) shi in wind direction. (tt, zz)
30-34: Fog and smoke
Fog; direction or variability. $(D_s D_s \text{ or } zz)$
Fog began. (tt)
Fog ended. (tt)
Fog bank in distance; direction or variability $(D_*D_* \text{ or } zz)$
Smoke; direction or variability. $(D_sD_s \text{ or } zz)$
35-39: Blowing Phenomena
Blowing dust (or sand), blowing snow. (tt, zz)
Drifting dust (or sand), drifting snow. (tt, zz)
Dust whirls; time began or variability. (tt or
zz) Dust whirls; time ended or variability. (tt or zz)
40–49: Visibility
Visibility; time of change, or variability. (tt or
Visibility; time of change, or variability. (tt or zz) Visibility to NE. (VV)





# Code Table 22c

### [WMO Code 487]

Symbol tt=Units and Tenths of Hours Before Observation (00-75)

ode Fig- ure	Hours and minutes <b>before</b> observation	Code Fig- ure	Hours and minutes before observation
00	At observation.	43	4 hours 18 minutes
01	0 hour 6 minutes.	44	4 " 24 "
02	0 fibur $0$ infinites. 0 " $12$ "	45	4 " 30 "
02	0 " 18 "	46	4 " 36 "
	$0 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	47	4 " 42 "
04	0 44 0 44	48	4 " 48 "
05	0 00		4 40
06	0 00	49	4 04
07	U 14	50	5 nours 0
08	0 10	51	0 0
09	0 04	52	0 14
10	I nour U	53	0 10
11	1 " 6 "	54	5 " 24 "
12	1 " 12 "	55	0 00
13	1 11 18 1	56	5 " 36 "
14	1 " 24 "	57	5 " 42 "
15	1 " 30 "	58	5 " 48 "
16	1 " 36 "	59	5 " 54 "
17	1 " 42 "	60	6 hours 0 "
18	1 " 48 "	61	6 to 7 hours.
19	1 " 54 "	62	7 to 8 "
$\hat{20}$	2 hours 0 "	63	8 to 9 "
21	2 " 6 "	64	9 to 10 "
22	2 " 12 "	65	10 to 11 "
23	$2^{-12}$ $2^{-12}$ $18^{-11}$	66	10 to 11 11 to 12 "
23 24	$2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 4 \\ 4 \\ 4 \\ 4 \\ 4 \\ $	67	12 to 18 "
24 25	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	68	More than 18
-	2 <b>3</b> 0	08	
26	∠ <u></u> 30	00	hours.
27	4 44	69	Time unknown.
28	4 40	70	Began during
29	4 0 <del>4</del>		observation.
30	5 Hours 0	71	Ended during
31	3 0		observation.
32	3 12	72	Began and ended
33	3 " 18 " -	· · · ·	during observa
-34	3 " 24 "		tion.
35	3 " 30 "	73	Changed consider
36	3 " 36 "		ably during
37	3 " 42 "		observation.
-38	3 " 48 "	74	Began after obser
39	3 " 54 "		vation.
40	4 hours 0 "	75	Ended after obser
41	4 " 6 "		vation.
		II	

### Code Table 22d

[WMO Code 495]

### Symbol zz=Variation in Phenomena

Code Figure	Description
70	Began while observation was being taken. <sup>1</sup>
70	Ended while observation was being taken. <sup>1</sup>
71 72	Began and ended while observation was being taken. <sup>1</sup>
73	Changed considerably while observation was being taken. <sup>1</sup>
74	Began after observation was taken. <sup>1</sup>
75	Ended after observation was taken. <sup>1</sup>
76	At station.
77	At station, but not in distance.
78	In all directions.
79	In all directions, but not at station.
80	Approaching station.
81	Receding from station.
82	Passing station in distance.
83	Seen in distance.
84	Reported in neighborhood, but not at station.
85	Aloft, but not near ground.
86	Near ground, but not aloft.
87	Occasional; occasionally.
88	Intermittent; intermittently.
89	Frequent; frequently; at frequent intervals.
90	Steady; steady in intensity; steadily; no appreciable change.
91	Increasing; increasing in intensity; has increased.
92	Decreasing; decreasing in intensity; has de- creased.
93	Fluctuating; variable.
94	Continuous; continuously.
95	Very light; very weak; greatly below normal; very thin; very poor.
96	Light; weak; below normal; thin; poor.
97	Moderate; normal; average thickness; fair; gradually.
98	Heavy; severe; thick; above normal; good; suddenly.
99	Very heavy; killing; very severe; dense; greatly above normal; very thick; very good.

<sup>1</sup> Code figures 70 to 75 refer to the ACTUAL time the element is observed.

NOTE.—Code figures 00 to 69, inclusive, refer to the STANDARD time of observation. Code figures 70 to 75, inclusive, refer to the ACTUAL time the element is observed.



### Code Table 22e

#### [WMO Code 3700]

Symbol S=State of Sea	(0 to 9)
Symbol S <sub>s</sub> S <sub>s</sub> =State of Sea	i (00 to 09)

Code Fig- ure	Description of sea	Height of waves in feet	Height of waves in meters
00	Calm (glassy)	0	0.
01	Calm (rippled)	0-1/3	0-0.1.
02	Smooth (wavelets)	1/3-12/3	0.1 - 0.5.
03	Slight	12/3-4	0.5 - 1.25.
<b>04</b>	Moderate	4-8	1.25 - 2.5.
05	Rough	8-13	2.5 - 4.
06	Very rough	13-20	4-6.
07	High	20-30	6-9.
08	Very high	30-45	9-14.
09	Phenomenal	Over 45	Over 14.

#### Notes

(1) The average wave height as obtained from the larger well-formed waves of the wave system being observed is reported.

(2) If an exact boundary height could be reported by two code figures the lower code figure will be reported; e.g., a height of 13 feet would be reported by code figure 5 or 05.

#### Code Table 22f

[WMO Code 461]

Symbol  $K_pK_p$ =Period of Sea Swell (in seconds)

Code Figure	Period	Code Figure	Period
$\begin{smallmatrix}1&11\\&12\\&13\end{smallmatrix}$	1 second. 2 seconds. 3 seconds.	14 Etc.	4 seconds Etc.

<sup>1</sup> The code figure gives the actual number of seconds plus ten.

### Code Table 22g

#### [WMO Code 442]

Symb	ol D	$D_s D_s =$	Direction	From	Station	(00–39)	

Code Figure		Directi	on /		
		· · ·		•	
00	At station.		- /		
02	NNE.		1		
04	NE.		. /		
06	ENE.		1 .		
08	<b>E</b> .		1		
10	$\mathbf{ESE}.$		/ .		
12	SE.				
14	SSE.	/			
16	S.	, d			
18	SSW.				
20	SW.				
22	WSW.				
24	W.				
26	WNW.				
28	NW.				

FMH No. 2

### Code Table 22g—Continued

Code Figure	Description
30	NN/W.
32	N.
33	Variable.
34	Unknown.
35	In several directions.
36	In several directions, but not at station.
37 /	Over nearby water area.
38	Over nearby valleys.
39	Over nearby hills or mountains.

### Code Table 22h

### Symbol ff=Wind Speed in Knots

Code Figure	Wind Speed	Code Figure	Wind Speed
	Calm; or un-	97	97 knots.
	known.	- 98	98 knots.
01	1 knot.	99	99 knots; or 100
02	2 knots.		knots.
03	3 knots.	01	101 knots. <sup>1</sup>
04	4 knots.	02	102 knots. <sup>1</sup>
Etc.	Etc.	03	103 knots. <sup>1</sup>
95	95 knots.	04	104 knots. <sup>1</sup>
96	96 knots.	Etc.	Etc.

<sup>1</sup>When the wind speed is greater than 100 knots TWO Special Phenomena groups are included in the message and the same code figure is reported for "S<sub>P</sub>S<sub>P</sub>" in both groups. In the first group "99" is reported for "S<sub>P</sub>S<sub>P</sub>" and in the second group the speed in EXCESS of 100 knots is reported for "S<sub>S</sub>S<sub>P</sub>". For example: In reporting a maximum wind of 124 knots, the groups are coded "92199 92124."

#### Code Table 22i

[WMO Code 431]

Symbol  $D_H$ =Direction From Which  $C_H$  Type Clouds Are Moving

Symbol D<sub>L</sub>=Direction From Which C<sub>L</sub> Type Clouds Are Moving

Symbol  $\mathbf{D}_{\mathbf{M}}$ =Direction From Which  $\mathbf{C}_{\mathbf{M}}$  Type Clouds Are Moving

Code Fig- ure	Direction	Code Fig- ure	Direction
. 0	Calm.	5	Southwest.
1	Northeast.	6	West.
2	East.	7	Northwest.
3	Southeast.	8	North.
4	South.	9	Unknown.

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### Code Table 22e

#### [WMO Code 3700]

Symbol $S = $ State of Sea (0 to 9)	
Symbol $S_sS_s$ =State of Sea (00 to 09)	<del>)</del> )

Code Fig- ure	Description of sea	Height of waves in feet	Height of waves in meters
00	Calm (glassy)	0	0.
01	Calm (rippled)	0-1/3	0-0.1.
02	Smooth (wavelets)	1/3-12/3	0.1 - 0.5.
03	Slight	12/3-4	0.5 - 1.25.
04	Moderate	4-8	1.25 - 2.5.
05	Rough	8-13	2.5 - 4.
06	Very rough	13-20	4-6.
07	High	20-30	6-9.
08	Very high	30-45	9-14.
09	Phenomenal	Over 45	Over 14.

#### NOTES

(1) The average wave height as obtained from the larger well-formed waves of the wave system being observed is reported.

(2) If an exact boundary height could be reported by two code figures the lower code figure will be reported; e.g., a height of 13 feet would be reported by code figure 5 or 05.

### Code Table 22f

[WMO Code 461]

Symbol  $K_pK_p$ =Period of Sea Swell (in seconds)

Code Figure	Period	Code Figure	Period
<sup>1</sup> 11 12 13	1 second. 2 seconds. 3 seconds.	14 Etc.	4 seconds. Etc.

<sup>1</sup> The code figure gives the actual number of seconds plus ten.

#### Code Table 22g

[WMO Code 442]

Symbol  $D_s D_s$  = Direction From Station (00-39)

Code Figure		Direction
00	At station.	
02	NNE.	
04	NE.	
06	ENE.	a de la stra por toto conserv
08	Е.	
10	ESE.	
12	SE.	
14	SSE.	
16	S.	
18	SSW.	
20	SW.	
22	WSW.	1. Star (1997) - 1. Star (1997)
24	W.	
26	WNW.	
28	NW.	

### Code Table 22g-Continued

Code Figure	Description
30	NNW.
32	N.
33	Variable.
34	Unknown.
35	In several directions.
36	In several directions, but not at station.
37	Over nearby water area.
- 38	Over nearby valleys.
39	Over nearby hills or mountains.

### Code Table 22h

### Symbol ff=Wind Speed in Knots

00 Calm; or un- known. 01 1 knot. 02 2 knots. 03 3 knots.	97 98 99	97 knots. 98 knots.
01 1 knot. 02 2 knots.		
	99	99 knots; or 100
03   3 knots.		knots.
	01	101 knots. <sup>1</sup>
04 4 knots.	02	102 knots. <sup>1</sup>
Etc. Etc.	03	103 knots. <sup>1</sup>
95 95 knots.	04	104 knots. <sup>1</sup>
96 96 knots. E	tc.	Etc.

<sup>1</sup>When the wind speed is greater than 100 knots TWO Special Phenomena groups are included in the message and the same code figure is reported for "S<sub>P</sub>S<sub>P</sub>" in both groups. In the first group "99" is reported for "S<sub>P</sub>S<sub>P</sub>" and in the second group the speed in EXCESS of 100 knots is reported for "S<sub>P</sub>S<sub>P</sub>". For example: In reporting a maximum wind of 124 knots, the groups are coded "92199 92124."

### Code Table 22i

[WMO Code 431]

Symbol  $D_H$ =Direction From Which  $C_H$  Type Clouds Are Moving

Symbol  $D_L$ =Direction From Which  $C_L$  Type Clouds Are Moving

Symbol  $D_M$ =Direction From Which  $C_M$  Type Clouds Are Moving

Code Fig- ure	Direction	Code Fig- ure	Direction
0	Calm.	5	Southwest.
1	Northeast.	6	West.
<b>2</b>	East.	7	Northwest.
3	Southeast.	8	North.
4	South.	9	Unknown.

# Code Table 22c

### [WMO Code 487]

Symbol tt=Units and Tenths of Hours Before Observation (00-75)

ode Fig- ure	Hours and minutes before observation	Code Fig- ure	Hours and minutes before observation
		49	4 hours 18 minutes.
00	At observation.	43	
01	0 hour 6 minutes.	44	4 41
02	0 12	45	4 50
03	0 " 18 "	46	4 30
04	0 24	47	4 42
05	0 " 30 "	48	4 48
06	0 " 36 "	49	4 54
07	0 " 42 "	50	5 nours o
08	0 " 48 "	51	5 0
09	0 " 54 "	52	5 14
10	1 hour 0 "	53	01 6
11	1 " 6 "	54	5 " 24 "
<b>12</b>	1 " 12 "	55	5 " 30 `` /
13	1 " 18 "	56	5 " 36 "
14	1 " 24 "	57	5 " 42 "
15	1 " 30 "	58	5 " 48 /
16	1 " 36 "	59	5 " 54 /"
17	1 " 42 "	60	6 hours 0 / "
18	1 " 48 "	61	6 to 7 hours.
19	1 " 54 "	62	7 to 8 / "
20	2 hours 0 "	63	8 to 9 / "
<b>21</b>	2 " 6 "	64	9 to 10' "
22	2 " 12 "	65	10 to/11 "
23	2 " 18 "	66	11 tó 12 "
24	2 " 24 "	67	12 to 18 "
<b>25</b>	2 " 30 "	68	More than 18
<b>26</b>	2 " 36 "		/ hours.
27	2 " 42 "	69	Time unknown.
28	2 " 48 "	70/	Began during
29	2 " 54 "		observation.
30	3 hours 0 "	71	Ended during
31	3 " 6 "		observation.
32	3 " 12 "	72	Began and ended
33	3 " 18 "	1	during observa-
34	3 " 24 "	4	tion.
35	3 " 30 "	73	Changed consider-
36	3 " 36 "		ably during
37	3 " 42 "		observation.
38	3 " 48 "	74	Began after obser-
39	3 " 54 "	.	vation.
39 40	4 hours 0 "	75	Ended after obser-
41	4 " 6 "		vation.
42	4 " 12 "		
4±2	<b>1</b> 14		

Code Table 22d

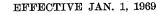
#### [WMO Code 495]

# Symbol zz=Variation in Phenomena

Code Figure	Description
	ter a second de la companya de la co
70	Began while observation was being taken. <sup>1</sup>
71	Ended while observation was being taken. <sup>1</sup>
72	Began and ended while observation was being
· ·	taken. <sup>1</sup>
73	Changed considerably while observation was
	being taken. <sup>1</sup>
74	Began after observation was taken. <sup>1</sup>
/75	Ended after observation was taken. <sup>1</sup>
7 76	At station.
77	At station, but not in distance.
78	In all directions.
79	In all directions, but not at station.
80	Approaching station.
81	Receding from station.
82	Passing station in distance.
83	Seen in distance.
84	Reported in neighborhood, but not at station.
85	Aloft, but not near ground.
86	Near ground, but not aloft.
87	Occasional; occasionally.
88	Intermittent; intermittently.
89	Frequent; frequently; at frequent intervals.
90	Steady; steady in intensity; steadily; no ap.
	preciable change.
91	Increasing; increasing in intensity; has in- creased.
92	Decreasing; decreasing in intensity; has de-
	creased.
93	Fluctuating; variable.
94	Continuous; continuously.
95	Very light; very weak; greatly below normal;
	very thin; very poor.
96	Light; weak; below normal; thin; poor.
97	Moderate; normal; average thickness; fair; gradually.
98	Heavy; severe; thick; above normal; good; suddenly.
99	Very heavy; killing; very severe; dense; greatly
	above normal; very thick; very good.

<sup>1</sup> Code figures 70 to 75 refer to the ACTUAL time the element is observed.

NOTE.—Code figures 00 to 69, inclusive, refer to the STANDARD time of observation. Code figures 70 to 75, inclusive, refer to the ACTUAL time the element is observed.





# Code Table 23

[WMO Code 0885]

Symbol	$\mathbf{d}_{\mathbf{w}}\mathbf{d}_{\mathbf{w}} =$	True	Direction	from	which
Swell	Waves	Come,	in Tens of	of Degre	ees

1.1	· _	1	
Code Fig- ure	Direction	Code Fig- ure	Direction
00	Calm (no waves).	20	195°-204°.
01	5°–14°.	21	205°-214°.
02	15°-24°.	22	$215^{\circ}-224^{\circ}$ .
03	25°–34°.	23	225°-234°.
04	35°-44°.	24	235°-244°.
05	45°–54°.	25	245°–254°.
06	55°–64°.	26	$255^{\circ}-264^{\circ}$ .
07	65°-74°.	27	265°-274°.
08	75°–84°.	28	275°-284°.
09	85°–94°.	29	285°-294°.
10	95°104°.	30	295°-304°.
11	105°-114°.	31	305°-314°.
12	115°–124°.	32	315°324°.
13	125°-134°.	33	325°-334°.
14	135°-144°.	34	335°344°.
15	$145^{\circ}-154^{\circ}$ .	35	345°-354°.
16	155°–164°.	36	355°-4°.
17	165°-174°.	98	Waves confused,
18	175°–184°.	- 15 - 1 1	direction in-
19	185°–194°.		determinate.
			1

### **Code Table 24**

#### [WMO Code 3155]

Symbol  $P_w$ =Period of the Swell Waves

Code Fig- ure	Period
0	10 seconds.
1	11 seconds.
<b>2</b>	12 seconds.
3	13 seconds.
4	14 seconds or more.
5	5 seconds or less.
6	6 seconds.
7	7 seconds.
8	8 seconds.
9	9 seconds.
10	Calm or period not determined.
<u>-</u>	No. and the second s

# WMO Code Table 2100

Symbol K=Effect of the Ice on Navigation

		Code Fig- ure	Navigation Conditions
able 0663	•	0	Navigation unobstructed. Navigation unobstructed for steamers,
n of Kind of Ice	-	2	difficult for sailing ships. Navigation difficult for low-powered steamers, closed to sailing ships.
ications		3	Navigation possible only for powerful steamers.
		4	Navigation possible only for steamers constructed to withstand ice pressure.
ed to report ice blink		5	Navigation possible with the assistance of icebreakers.
on must be reported).		6 7	Channel open in solid ice. Navigation temporarily closed.
		8	Navigation closed.
ush or sludge.		s 9 :	Navigation conditions unknown (e.g., ow- ing to bad weather).
ice.		<u> </u>	
	· · · · · · · · · · · · · · · · · · ·	· · · · · ·	
at a second s		•	· · ·
n language.			and a second second Second second

2 N

# WMO Code Table 0663

Symbol  $c_2$ =Description of Kind of Ice

Code Fig- ure	Specifications
0	No ice (0 may be used to report ice blink
U	and then a direction must be reported).
1	New ice.
2	Fast ice.
3	Pack ice/drift ice.
4	Packed (compact) slush or sludge.
<b>5</b>	Shore lead.
6	Heavy fast ice.
7	Heavy pack ice/drift ice.
8	Hummocked ice.
9	Icebergs.*

\*Icebergs can also be reported in plain language

### **Conversion Table B**

### Wind Direction

[Degrees to 16 Compass Points]

Degrees	Compass Point	Degrees	Compass Point
349° 11°	N	169°–191°	S
12° 33°	NNE	192°–213°	SSW
$34^{\circ}-56^{\circ}$	ŇE	214°-236°	SW
57°- 78°	ENE	237°-258°	wsw
79°–101°	$\mathbf{E} \setminus $	259°–281°	W
102°–123°	ESĘ	282°-303°	WNW
124°–146°	$\mathbf{SE} \setminus \mathbf{C}$	304°326°	NW
$147^{\circ} - 168^{\circ}$	$SSE \setminus$	327°-348°	NNW

# Conversion Table C

Meters Per Second to Knots

					7					
$\mathbf{M}\mathbf{ps}$	0	1	2	3	4	5	6	7	8	9
	Knots	Knots	Knots	Knots	Knots	Knots	Knots	Knots	Knots	Knots
0		1.9	3.9	5.8	7.8	9.7	11.7	13.6	15.5	17.5
10	19.4	21.4	23.3	25.3	27.2	29.1	31.1	33.0	35.0	36.9
<b>20</b>	38.9	40.8	42.7	44. 7/	46.6	<b>48.6</b>	50.5	52.4	54.4	56.3
30	58.3	60.2	62.2	64. 1	66. 0	68. 0	69.9	71.9	73.8	75.8
40	77.7	79.6	81.6	83.5	85.5	87.4	89.4	91.3	93. 2	95.2
50	97.1	99.1	101. 0	103.0	104.9	106.8	108.8	110.7	112.7	114.6
60	116.6	118.5	120.4	122.4	124.3	126.\3	128.2	130.1	132.1	134.0
70	136.0	137.9	139. 9	141.8	143.7	145. 7	147.6	149.6	151.5	153.5
80	155.4	157.3	159/3	161.2	163.2	165. 1	167.1	169.0	170.9	172.9
90	174.8	176.8	178.7	180.7	182.6	184.5	186.5	188.4	190.4	192.3
100	194.3						<u></u>			
		ļ,	/							
	4			1						

## **Conversion Table D**

### Knots to Meters per Second

Knots	0	1	2	3	4	5	6	7	8	9
	Mps	Mps 0. 5	Mps 1. 0	Mps 1. 5	Mps 2. 1	Mps 2. 6	Mps 3. 1	Mps. 3. 6	Mps 4. 1	Mps 4.6
10	5.1	5.7	6.2	6.7	7.2	7.7	8.2	8.8	9.3	9.8
<b>20</b>	10.3	10.8	11. 3	11.8	12.4	12.9	13.4	13.9	14. 4	14.9
30	15.4	16.0	16.5	17.0	17.5	18.0	18.5	19.0	19.6	20.1
40	20.6	21.1	21.6	22.1	22.7	23. 2	23.7	24. 2	24.7	25. 2
50	25.7	26.3	26.8	27.3	27.8	28.3	28.8	29.3	29. 9	30.4
60	30. 9	31.4	31. 9	32.4	32.9	33. 5	34.0	34.5	35. 0	35.5
70	36. 0	36.6	37.1	37.6	38.1	38. 6	39.1	39.6	40. 2	40.7
80	41.2	41.7	42.2	42.7	43. 2	43.8	44.3	44.8	45.3	45.8
90	46.3	46.8	47.4	47.9	48.4	48.9	49.4	49.9	<b>50.4</b>	51.0
100	51.5	52.0	52.5	53.0	53.5	54.1	54.6	55.1	55.6	56.1

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# WMO Code Table 0700

Symbol D<sub>s</sub>=Ship's Course (true) Made Good During the 3 Hours Preceding the Time of Observation

Code Fig- ure	Direction	Code Fig- ure	Direction
0	Stationary.	5	Southwest.
$egin{array}{c} 1 \\ 2 \end{array}$	Northeast.	6	West.
	East.	7	Northwest.
3	Southeast.	8	North.
4	South.	9	Unknown.

# WMO Code Table 0739

Symbol  $D_i$ =Bearing of the Ice Edge

Code Fig- ure	Specifications
0	No ice edge can be stated.
1	Ice edge towards NE.
2	Ice edge towards E.
3	Ice edge towards SE.
4	Ice edge towards S.
5	Ice edge towards SW.
6	Ice edge towards W.
7	Ice edge towards NW.
8	Ice edge towards N.
9	Ice edge in several directions.

### WMO Code Table 1000

Symbol e=Orientation of the Ice Edge

Code	
Fig- ure	Orientation
0	Orientation of ice edge impossible to esti-
	mate-ship outside the ice.
1	Ice edge lying in a direction NE to SW with ice situated to the NW.
2	Ice edge lying in a direction E to W with
	ice situated to the N.
3	Ice edge lying in a direction SE to NW
	with ice situated to the NE.
4	Ice edge lying in a direction S to N with
	ice situated to the E.
5	Ice edge lying in a direction SW to NE with ice situated to the SE.
6	Ice edge lying in a direction W to E with
	ice situated to the S.
7	Ice edge lying in a direction NW to SE with ice situated to the SW.
8	Ice edge lying in a direction N to S with
	ice situated to the W.
9	Orientation of ice edge impossible to esti-
	mate—ship inside the ice.

### WMO Code Table 3600

Symbol r=Distance of Ice Edge from Reporting Ship

Code Fig- ure	Miles	Kilometers
0	Up to 1 mile	Up to 2 kilometers.
1	1–2 miles	2–4 kilometers.
2	2–4 miles	4–7 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 $20 \text{ miles}_{-}$	More than 37 kilo- meters.
9	Unspecified, or no observation.	Unspecified, or no observation.
		<u>na kapitané (ili</u>

Nore: 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.

# CHAPTER D4. WMO CODE TABLES

### 1 General

1.1 The tables of specifications required by the forms of messages given in PART B of this Handbook are given in PART C where they are numbered consecutively in the order in which they appear in the forms of messages given in PART B. PART C contains all of the Code Tables required by United States stations in WMO Regions IV and V.

1.2 Chapter D4 contains additional tables of specifications required to decode reports that might be received from other countries. The tables of specifications in this Chapter are identified by their WMO numbers and are referred to as WMO Code Tables. The WMO Code Tables appear in their numerical order.

1.3 The Code Tables given in PART C are not repeated in Chapter D4; therefore, in order to decode reports given in the forms of messages in PART D it will be necessary to refer to both PART C and Chapter D4.

### WMO Code Table 0500

#### Symbol CC=Genus of Cloud

Code Letters	Type of Cloud	Code Figures	
CI	Cirrus_/	U,	
CC	Cirrocumulus	1	
CS.	Cirrostratus	2	
AC	Altocumulus	3	
AS	Altostratus	4	
NS /	Nimbostratus	5	
$\mathbf{SC}$	Stratocumulue	6	
ST	Stratus	7	
CU	Cumulus	8	
CB	Cumulonimbus	9	
$H^{+}$	Cloud not visible owing to dark-	1.1	
	ness, fog, duststorm, sand- storm, or other analogous		
	phenomena.		
		1	

### WMO Code Table 0663

Symbol  $c_2$ =Description of Kind of Ice

Code Fig-	Specifications
ure	
() <sup>2</sup>	
0	No ice (0 may be used to report ice blink
	and then a direction must be reported).
1	New ice.
2	Fast ice.
3	Pack ice/drift ice.
4	Packed (compact) slush or sludge.
5	Shore lead.
6	Heavy fast ice.
7	Heavy pack ice/drift ice.
8	Hummocked ice.
9	Icebergs.*

\*Icebergs can also be reported in plain language.

# WMO Code Table 0264

Symbol **a**<sub>4</sub>=Indicator Giving the Standard Isobaric Surface for which the Altitude is Reported.

ode igure	Standard Isobaric Surface					
 	· · · · · · · · · · · · · · · · · · ·		<u> </u>			
0	1000 mb surface.					
1	850 mb surface.					
<b>2</b>	700 mb surface.					
					·	

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D4-1

FMH No. 2



U.S. DEPARTMENT OF COMMERCE National Oceanic and Atmospheric Administration NATIONAL WEATHER SERVICE

W345

March 6, 1978

TO Ligted Below

FROM: Chief, Meteorological Techniques Br/AD/NMC

SUBJ: New Data Format for "Bogus" Reports (Type 551) Office Note 124 in 'NWS.NMC.PROD.SFCBOG.TxxZ.LATEST'

In order to streamline the method of utilizing the NESS moisture estimates in our operations, an addition to Table SM.8a is being adopted. By storing the NESS moisture estimate (which is simply a number 1-10 at present), the procedures for utilizing them in the global analysis pre-processor (GLAPP) and the LFM moisture processor (LFMRH) can be greatly simplified. The necessary addition to 0. N. 124 is given below:

TABLE SM.8a					
Code Figure					
Figure	Specification				
95	Moisture estimate by category LLNNN				

#### Definitions

LL Level indicator: 97 = station level (surface) NNN Category number (integer)

In order to implement the change it would be highly desirable for GLAPP (Rasch), LFMRH (Costello) and LISTSFC2 (Fleming) to be able to accomodate both the current method and the proposed method equally. The target date for introduction of the new method is April 19, 1978.

Distribution: Mr. Costello Mr. Fleming Mr. Rasch W32(5) W33(2) Mr. Howcroft Mr. Shimomura Ms. Loman Mr. Fuller Mr. Irwin D52 Mr. Doty (D523) Mr. Koffler (S132) NCAR (Jenne) NHC (Zimmer)

