





# SYMBOL TT—AIR TEMPERATURE

## SYMBOL T.T.—DEWPOINT TEMPERATURE

All temperatures are entered in whole degrees of the Fahrenheit scale. Missing air temperatures are indicated by "M" only if T<sub>a</sub> is also reported; otherwise no indication is made.

## SYMBOL tt—WATER TEMPERATURE

Water temperatures are entered in whole degrees of the Fahrenheit scale and are obtained directly from T<sub>a</sub>, the coded difference between air and water temperature. The following values are used for T<sub>a</sub>:

Code No. T <sub>a</sub>	Difference, °F	Code No. T <sub>a</sub>	Difference, °F
0	-10	5	+1
1	-8	6	+2
2	-5	7	+5
3	-2	8	+8
4	-1	9	+10

The difference is applied to air temperature to obtain water temperature.

## SYMBOL V—HORIZONTAL VISIBILITY

Code figure	Visibility in meters		Visibility in miles
	Objects are visible at	Objects not visible at	
0	—	50	1/8 (55 yds.)
1	50	200	1/4 (220 yds.)
2	200	500	1/2 (550 yds.)
3	500	1,000	3/4 (1,100 yds.)
4	1,000	2,000	1 1/4 (2,200 yds.)
5	2,000	4,000	2 1/2 miles
6	4,000	10,000	6 miles
7	10,000	20,000	12 miles
8	20,000	50,000	30 miles
9	50,000	—	—

## SYMBOL V.—SHIP'S SPEED

The speed of ship's movement is entered in knots near the arrow indicating ship's direction (ds). The symbol φ indicates no movement, or "hove to."

## SYMBOL W—PAST WEATHER

Code figure	Weather	Code figure	Weather
0	Clear or scattered clouds.	4	Fog, or thick dust-haze (visibility less than 1,000 meters, 1,100 yards.)
1	Broken clouds or variable sky.	5	Drizzle.
2	Overcast.	6	Rain.
3	Sandstorm or dust-storm, or storm of drifting snow.	7	Snow or sleet.
		8	Showers.
		9	Thunderstorm.

## SYMBOL ww—PRESENT WEATHER

Note.—In coding present weather the highest code figure in complete table applicable to weather at time of observation is used.

### Figures 00 to 19: Abbreviated description of sky and special phenomena

- 00 Cloudless (from no clouds up to but not including 1/10).
- 01 Partly cloudy (from exactly 1/10 to exactly 5/10).
- 02 Cloudy (over 5/10 up to and including exactly 9/10).
- 03 Overcast (over 9/10).
- 04 Low fog, whether on ground or at sea.
- 05 Haze (but visibility 1,000 meters, 1,100 yards or more).
- 06 Dust devils seen.
- 07 Distant lightning.
- 08 Light fog (visibility 1,000 meters, 1,100 yards or more).
- 09 Fog at a distance, but not at station (or ship).
- 10 Precipitation within sight.
- 11 Thunder, without precipitation at station (or ship).
- 12 Duststorm within sight, but not at station (or ship).
- 13 Ugly, threatening sky.
- 14 Squally weather.
- 15 Heavy squalls in last 3 hours.
- 16 Waterspouts seen in last 3 hours.
- 17 Visibility reduced by smoke.
- 18 Blowing dust (visibility 1,000 meters, 1,100 yards or more).
- 19 Signs of tropical storm or hurricane.

### Figures 20 to 29: Precipitation in last hour (But not at time of observation)

- 20 Precipitation in any form.
- 21 Drizzle.
- 22 Continuous or intermittent rain.
- 23 Continuous or intermittent snow.
- 24 Continuous or intermittent rain and snow, mixed.
- 25 Rain showers.
- 26 Snow showers.
- 27 Hail, or rain and hail, showers.
- 28 Light or moderate thunderstorm.
- 29 Heavy thunderstorm.

### Figures 30 to 39: Duststorms and storms of drifting snow (Visibility less than 1000 meters, 1100 yards)

- 30 Duststorm or sandstorm.
- 31 Duststorm or sandstorm has decreased.
- 32 Duststorm or sandstorm, no appreciable change.
- 33 Duststorm or sandstorm has increased.
- 34 Line of duststorms.
- 35 Storm of drifting snow.
- 36 Light or moderate storm of drifting snow
- 37 Heavy storm of drifting snow
- 38 Light or moderate storm of drifting snow
- 39 Heavy storm of drifting snow

### Figures 40 to 49: Fog

(Visibility less than 1,000 meters, 1,100 yards)

- 40 Fog.
- 41 Moderate fog in last hour
- 42 Thick or dense fog in last hour
- 43 Fog, sky discernible
- 44 Fog, sky not discernible
- 45 Fog, sky discernible
- 46 Fog, sky not discernible
- 47 Fog, sky discernible
- 48 Fog, sky not discernible
- 49 Fog in patches.

### Figures 50 to 59: Drizzle

- 50 Drizzle.
- 51 Intermittent
- 52 Continuous
- 53 Intermittent
- 54 Continuous
- 55 Intermittent
- 56 Continuous
- 57 Drizzle and Fog.
- 58 Light or moderate drizzle and rain.
- 59 Heavy drizzle and light rain.

### Figures 60 to 69: Rain

- 60 Rain.
- 61 Intermittent
- 62 Continuous
- 63 Intermittent
- 64 Continuous
- 65 Intermittent
- 66 Continuous
- 67 Rain and fog.
- 68 Light or moderate
- 69 Heavy

### Figures 70 to 79: Snow

- 70 Snow.
- 71 Intermittent
- 72 Continuous
- 73 Intermittent
- 74 Continuous
- 75 Intermittent
- 76 Continuous
- 77 Snow and fog.
- 78 Snow grains.
- 79 Ice crystals; or sleet.

### Figures 80 to 89: Showers

- 80 Showers.
- 81 Showers of light or moderate
- 82 Showers of heavy
- 83 Showers of light or moderate
- 84 Showers of heavy
- 85 Showers of light or moderate
- 86 Showers of heavy
- 87 Showers of snow pellets.
- 88 Showers of light or moderate
- 89 Showers of light or moderate

### Figures 90 to 99: Thunderstorm

- 90 Thunderstorm, with precipitation falling.
- 91 Rain and thunder in last hour, with rain.
- 92 Precipitation and thunder during last hour, with snow, or rain and snow mixed.
- 93 Light thunderstorm, without hail, but with rain or snow.
- 94 Light thunderstorm, with small hail.
- 95 Moderate thunderstorm, without hail, but with rain or snow.
- 96 Moderate thunderstorm, with small hail.
- 97 Heavy thunderstorm, without hail, but with rain or snow.
- 98 Thunderstorm, combined with duststorm.
- 99 Heavy thunderstorm with hail.

Not all sources report present weather. When regularly reported, a missing value is indicated by "M" in the ww position.

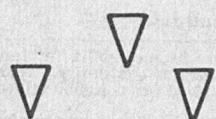
## SYMBOL RR—PRECIPITATION

The amount of precipitation is given in inches, to hundredths, for the 11 to 13-hour period ending at time of observation. Some sources report for other periods, as indicated in the description of specific sources.

## ADDITIONAL SYMBOLS

1. Parentheses enclose pressures or temperatures obtained by interpolation from isopleths drawn on previously prepared maps.
2. Brackets enclose pressure values for stations above 100 meters for which reduction to sea-level was made in the plotting unit.
3. The symbol (Ra) identifies reports from Cavite messages or similar wireless reports.
4. On ship reports the abbreviated name of the ship is entered below the report.

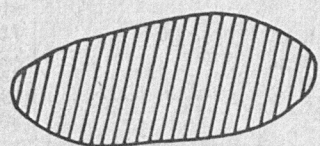
## PRECIPITATION SYMBOLS



SHOWERS



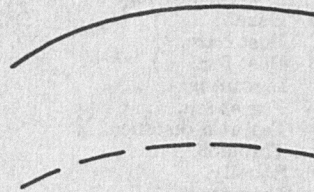
DRIZZLE



HATCHING DENOTES AREA OF PRECIPITATION (other than drizzle) OR GENERAL AREA OF MIXED PRECIPITATION TYPES.

## ISOBARS

SOLID ISOBARS FOR EACH 5 MILLIBAR INTERVAL WHERE PRESSURE VALUES ARE REASONABLY CERTAIN.



DASHED ISOBARS FOR EACH 5 MILLIBAR INTERVAL WHERE PRESSURE FIELD IS UNCERTAIN.



ALTERNATE DASH AND DOT FOR INTERMEDIATE VALUES OF 2.5 MILLIBARS IN REGIONS OF EXTREMELY FLAT PRESSURE FIELDS.

## AIR MASS DESIGNATORS

MP  
cP  
MT  
cT  
cA

POLAR MARITIME

POLAR CONTINENTAL

TROPICAL MARITIME

TROPICAL CONTINENTAL

ARCTIC CONTINENTAL

## SYMBOLS USED FOR DESIGNATING FRONTS:



COLD FRONT



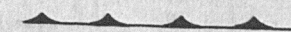
WARM FRONT



OCCLUDED FRONT



STATIONARY FRONT



COLD FRONTOGENESIS



WARM FRONTOGENESIS



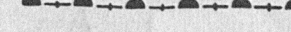
STATIONARY FRONTOGENESIS



COLD FRONTOLYSIS



WARM FRONTOLYSIS



OCCLUDED FRONTOLYSIS



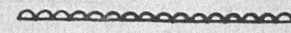
COLD FRONT ALOFT



WARM FRONT ALOFT



OCCLUDED FRONT ALOFT



OCCLUDED FRONTOLYSIS ALOFT



# OUTLINE OF DATA SOURCES, AUGUST 1933

## LAND AREAS

Area	Source No.	Special Code	Period of precipitation
<b>Africa:</b>			
French North Africa	1	A, C	No report
Egypt	2	B, D	24 hours
Libya	9	†	No report
Rio de Oro	12	A	No report
<b>Asia:</b>			
China	5	B, D	No report
India and Burma	4	C, G	24 hours
Indo China	5	B, D	No report
Japan and Korea, Pelew, Saipan, and Ponapi	6	B, C, F*	24 hours
Philippines and Yap	7	B	No report
Siberia	8	A	12 hours*
<b>Asia Minor:</b>			
Turkey	9	†	No report
<b>Europe:</b>			
England	10*, 12	A, C, H	No report
France	11*, 12	A	No report
Greece	9	A	No report
Norway	12, 20*	A	No report
Russia	8	A	12 hours
Spain	12, 21*	A, B, C	No report
Other European Countries	12	A	No report
Atlantic Islands <sup>b</sup>	12, 24*	A, B, C	No report
<b>The Americas:</b>			
North America	13, 27	E	No report
South America	13, 27	E	No report
Central America, Caribbean Area, and Bermuda	13, 27	E	No report
U.S. Island Possessions	13, 27	E	No report
Greenland	14*	B, C	24 hours
Mygbukta	12	A	No report
Julianhaab, Godthaab, and Godhavn	22	B, D	No report
Angmagsalik and Scoresbysund	22	CDFI	No report

## OCEAN AREAS

Ocean	Source No.	Special Code
Atlantic and Mediterranean	12, 13, 15	A, C, E, F, H
Pacific	13, 15	C, E, F, H
Indian	15	C, F, H

## SINGLE STATION SOURCES

Station	Source No.	Special Code	Period of precipitation
Ankara, Turkey	25	B, C	No report
Beirut, Syria	16	B, C	No report
Belgrade, Yugoslavia	12, 17*	A, B, C	No report
Bolama, Port. Guinea	24	B, C	No report
Georgetown, British Guiana	18	B, C	No report
Lemberg, Poland	12, 26*	A, C	No report
Lisbon, Ponta Delgada, Horta, Funchal	12, 19*	A, B, C	No report
Nanking, China	3	B, C	24 hours
Zagreb, Yugoslavia	12, 23*	A, B, C	No report

\* Used only when reports are missing from regular source.  
† Reports are entered from previously prepared weather maps. Pressures are interpolated from the isobaric analysis.  
\* A few stations only report cloud types.  
<sup>b</sup> Iceland, Tenerife, Horta, Sao Vicente, San Tiago.  
\* Reports at 19-hours local time only.

## SOURCES OF DATA

- Bulletin de l'Afrique du Nord, *Office National Meteorologique de France*.
- Daily Weather Report, *Egypt*.
- Monthly Meteorological Bulletin, *Nanking Institute of Meteorology, National Research Institute*.
- Indian Daily Weather Report.
- Daily Weather Charts, *Zi-ka-wei Observatory, Shanghai*.
- Monthly Report, *Central Meteorological Observatory, Tokyo*.
- Annual Report of the Weather Bureau, *Department of Agriculture and Commerce, Commonwealth of the Philippines*.
- Moscow Daily Meteorological Bulletin.
- Bulletin Quotidien du Temps, *Service Meteorologique National, Greece*.
- Daily Weather Report, *British Section, Meteorological Office, London*.
- Bulletin Quotidien d' Etudes de l'Office National Meteorologique de France.
- Deutsche Seewarte Wetterbericht, *Hamburg*.
- Forecasters' Manuscript Maps, *United States Weather Bureau*.
- Meteorologiske Aarbog, Part II, *Meteorologiske Institut, Denmark*.
- Ship Weather Observations, *United States Weather Bureau Forms 1201 and 1210*.
- Monthly Bulletin of the Observatory, *American University of Beirut*.
- Bulletin Meteorologique de l'Observatoire de Beograd.
- Report on Meteorology, *British Guiana*.
- Anias do Observatorio Central Meteorologico, *Lisbon*.
- Vaerkart, *Norske Meteorologiske Institut*.
- Boletin del Servicio Meteorologico Espanol, *Instituto Geografico, Catastral y de Estadistica, Madrid*.
- Vejrberetning, *Meteorologiske Institut, Denmark*.
- Meteorologischer Monatsbericht, *Geofizicki Institut, Zagreb*.
- Anias Meteorologicas das Colonias, *Ministerio das Colonias, Portugal*.
- Meteoroloji Rasatlari, *Meteorological Institute, Turkey*.
- Meteorologische Beobachtungen, *Lemberg*.
- North America Manuscript Maps, *Massachusetts Institute of Technology, Boston*.

## SPECIAL CODES

### Code A

#### REGULAR INTERNATIONAL CODE REPORTS

The following coverages are used when N is not specifically given, but when present weather is reported:

ww given	N used	ww given	N used
00	0	04—49	Missing
01	4	50—79	8
02	5	80—99	5
03	8		

### Code B

Plain language description translated to International Code symbols.

#### PRESENT WEATHER

Description	ww
Ground fog	04
Haze or sand haze	05
Lightning	07
Mist	08
Fog over sea	09
Thunder	11
Yellow dust	18
Thunderstorm within the last hr.	28
Rain and drizzle	58
Rain and snow	68
Sleet	79
Hail	88

Other descriptions which fit exactly International Code descriptions are used with the proper symbols.

### Code C

#### SKY COVERAGE

Tenths of sky covered with clouds	N or N <sub>h</sub>	Tenths of sky covered with clouds	N or N <sub>h</sub>
0	0	4, 5, or 6	4
0, but cloud types given	1	7 or 8	5
1	2	9	6
2 or 3	3	10	8

### Code D

#### SKY COVERAGE

Description	N
Clear	0
1/4 or partly cloudy	3
1/2 or cloudy	4
3/4 or very cloudy	5
4/4 or overcast	8

### Code E

#### Forecasters' Manuscript Maps

#### PRESENT WEATHER

Base map description	ww used	N used when coverage missing
=	08	Missing.
q, ^	14	Missing.
F, ≡	40	Missing.
M, ≠	50	8
R, ., ., ., .	60	8
∇, ∇, ∇, ∇	60	8
(Land stations)	80	5
(Ship stations)	80	5
R & F, ≡	67	8
S, *	70	8
Δ	79	8
P, *∇	80	5
T, R	90	5
V		

#### SKY COVERAGE

Symbol given	N used	Symbol given	N used	Symbol given	N used
○	0	⊙	4	⊕	8

### Code F

#### CLOUD TYPES

Description	Cloud form used
Cu or K	L 1
Cu Nb or KN	L 3
St or S	L 5
St Cu or Sk	L 6
Nb or N	L 7
Cu and St Cu or K and SK	L 8
Cu and St or K and S	L 9
Cu Nb and St Cu or Kn and SK	M 1
Cu Nb and St or KN and S	M 2
Cu Nb and Nb or KN and N	M 3
A St or SC	M 7
Nb St or NS	H 1
A Cu or KC	H 8
A St and ACu or SC and KC	H 9
Ci or C	
Ci St or CS	
Ci Cu or CK	

### Code G

#### INDIAN PRESENT AND PAST WEATHER

Description	ww used	W used
Low ground fog.	04	4
Haze.		
Dust haze.	05	
Dust fog.		
Lightning.	07	
Fog at sea.	09	
Fog at a distance.	11	
Thunder.	14	
Squally.	30	3
Duststorm.	40	4
Foggy.	41	
Moderate fog in last hour.	50	5
Drizzle.	60	6
Drizzling.	70	7
Rain.		
Raining.		
Snow.		
Snowing.		
Thunderstorm.	90	9
Thunderstorm and drizzling.		
Thunderstorm with hail.		

### Code H

#### PRESENT WEATHER; BEAUFORT WEATHER NOTATION

Description	WW Used
b-blue sky (not more than a quarter of the sky covered.)	(N-3)
bc-sky partly cloudy (one-half covered.)	(N-4)
c-generally cloudy (three-quarters covered.)	(N-5)
o-overcast sky.	(N-8)
v-unusual visibility.	visibil-ity=9
z-dust haze; the turbid atmosphere of dry weather.	05
l-lighting.	07
m-mist, visibility 1000-2200 yds.	08
fs-fog over sea (coast station.)	09
jp-precipitation within sight of station	10
t-thunder.	11
u-ugly threatening sky.	13
q-squalls.	14
kq-line squall.	15
ks-storm of drifting snow.	35
f-fog, visibility 220-1100 yds.	40
fe-thick, damp fog.	40
F-thick fog, visibility less than 220 yds.	40
fg-fog on lower ground (inland station).	49
d-drizzle or fine rain.	50
r-rain.	60
s-snow.	70
rs-sleet.	79
p-passing showers.	80
h-hail.	88
h(r)-hail, or rain and hail.	88

Capital letters indicate intense, suffix "o" indicates slight, and repetition of letters indicates continuity. More specific present weather symbols are applied when sufficiently descriptive combinations are applicable.

A "solidus" divides actual existing weather from preceding conditions thus:

bc/r=fair weather after rain.

Symbols given with a solidus are plotted as past weather (W).

### Code I

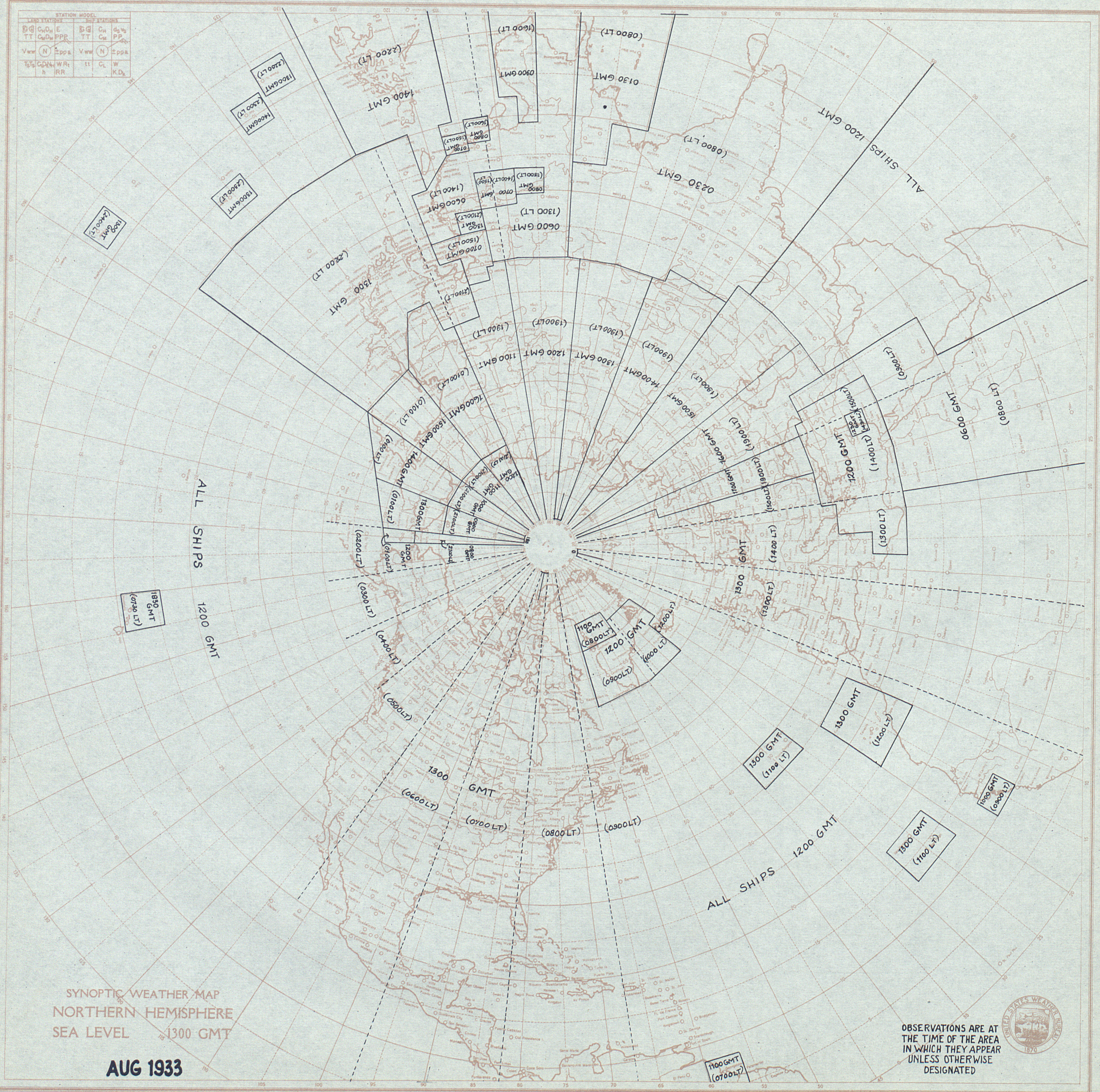
#### "OLD" INTERNATIONAL WEATHER CODE

Description	ww used
Precipitation within sight.	10
Thunder and lightning in neighborhood.	11
Fair to overcast:	
after rain or drizzle	22
after snow, sleet or hail	23
after thunderstorm.	28
Fog or mist.	40-49*
Passing showers.	80-89*
Drizzle.	50-56*
Rain.	61-66*
Snow, or snow and hail.	71-76*
Sleet, or rain and snow.	79
Hail, or rain and hail.	88, 89*
Thunderstorm.	93-99*
Line squall.	90

\* The proper symbol is determined by further qualification in the description.



STATION MODEL					
LAND STATIONS			SHIP STATIONS		
GG	C <sub>4</sub> H	E	GG	C <sub>4</sub> H	d <sub>5</sub> W <sub>3</sub>
TT	C <sub>4</sub> M	PPP	TT	C <sub>4</sub> H	PP
Vvw	(N)	±ppa	Vvw	(N)	±ppa
TsTs	C <sub>4</sub> D <sub>4</sub> N	WR <sub>t</sub>	tt	GL	W
	h	RR			KD <sub>5</sub>



OBSERVATIONS ARE AT  
THE TIME OF THE AREA  
IN WHICH THEY APPEAR  
UNLESS OTHERWISE  
DESIGNATED

