DECK 117

NAVY MARINE SURFACE OBSERVATIONS

This Reference Manual was prepared for use with Deck 117 punched from U. S. Navy hourly ship surface observations, recorded on WBAN 11A and 11B. The use of this weather reporting form was initiated June 1951, and is still being used as of this date 9/1957.

Mention should be made of the fact that fixed weather ship three-hourly surface observations were initiated on this form in January 1952, and is still in use.

This Reference Manual is an extension of Deck 110 (IBM Card No. 787687).

GENERAL PRACTICES

1. Observations taken while a ship was in or near port were not punched.

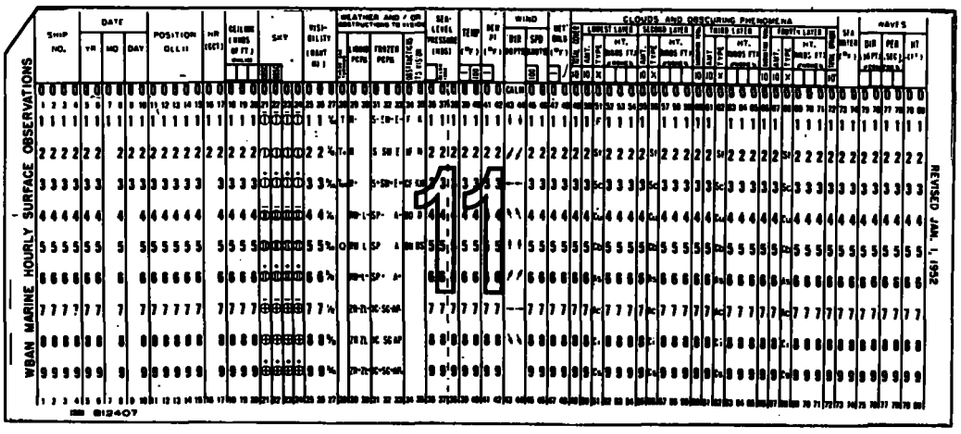
2. When an observation was missing or the ship failed to report for the entire month, no identification cards were punched.

3. Columns for which data were missing, or obviously in error, were left blank.

4. Effective 9/1/56, ceiling and height of high clouds were reported as 888, when the ceiling and/or height of the cloud was a cirro type and the height was estimated.

WEATHER ELEMENTS PUNCHED

When available, the weather elements shown in the heading of IBM Card No. 812407 (small WBAN 11) shown below was punched.



Extension of Deck 110 - Navy Marine Observations

Card Col. No.	Sym-bol	Item	Note	Card Code	Definition
1-4		Ship No.		x001-x999	All ships have been assigned numbers beginning with "x" in col. 1. The three following numbers in col. 2 thru 4 range from 001-999. Ship name and records available at NWRC.
5-6		Year		00-99	Punch last two figures of year. Thus: 52 = 1952. Period begins June 1951, and continues active.
7-8		Month		01-12	01 = January, 02 = February, etc., 12 = December.
9-10		Day		01-31	Thus: 25 = 25th day of month.
11	Q	Octant		0-3,5-8	(See table 1). Octant of globe.
12-13	L_aL_a	Latitude		00-90	Latitude to whole degrees.
14-15	L_oL_o	Longitude		00-99	Longitude to whole degrees, omitting the "1" if over 100°.
16-17	GT	Hour GCT		00-23	Hour of day. (00 = midnight of day beginning).
18-20	hhh	Ceiling	A, B	000-999	(xxx = unlimited or less than 6/10 opaque cloudiness). Ceiling was recorded in hundreds of feet above the surface up to 5,000 ft., the nearest 500 ft. up to 10,000 ft., to nearest 1,000 ft. above that.
21-24	S_1S_2 S_3S_4	Sky Condi-tion	A, C	(See table 2)	(See notes). S_1 = 1st sky layer, etc.
25-27	vv	Visibility	A	000-990	(See table 3). In nautical miles and fractions. 150 (15.0 mi.) was punched when visibility 15+ was reported, indicating visibility greater than 15 miles without a check point.
28-35	ww	Present Weather	A	(See table 4)	More than 1 column may be punched to denote combination of weather.
36-38	PPP	Corrected Sea Level Pressure	A	000-999	In tens, units and 10ths mbs. "x" overpunch in col. 36 = less than 1,000 mbs. "x" overpunch in cols. 36, 37 = less than 900 mbs.
39-40	TT	Temperature °F	A	00-99	Whole degrees Fahrenheit. ("x" overpunch in col. 39 = negative (-) values). ("x" overpunch in col. 40 = 100°F. or over).
41-42	T_dT_d	Dew Point Temperature °F.	A	00-99	Whole degrees Fahrenheit. "x" overpunch in col. 41 = negative (-) values.
43-44	dd	True Wind Direction	A	(See table 5)	16 points of 32-point compass.
45-46	ff	Wind Speed	A	00-99	In knots. "x" overpunch in col. 45 is equal to or greater than 100 knots.
47-48	T_wT_w	Wet Bulb Temperature °F.	A	00-99	In whole degrees Fahrenheit. "x" overpunch in col. 47 = negative (-) values.
49	N	Total Cloud Amount	A, D	0-9, x	In tenths. x = 10/10ths.
50	N_1	Cloud Amt. in 10ths	A, D, E	" "	1st or lowest layer.
55	N_2	" " " "	" " "	" "	2nd layer.
61	N_3	" " " "	" " "	" "	3rd layer.
67	N_4	" " " "	" " "	" "	4th layer.
60	N_1+N_2	" " " "	" " "	" "	Summation of layers 1 and 2.
66	$N_1+N_2+N_3$	" " " "	" " "	" "	Summation of layers 1, 2 and 3.
72	N_{opaque}	" " " "	" " "	" "	Total opaque sky cover.
51	C_1	Cloud Type	" "	(See table 6)	1st or lowest layer.
56	C_2	" "	" "	" "	2nd layer.
62	C_3	" "	" "	" "	3rd layer.
68	C_4	" "	" "	" "	4th layer.
52-54	hhh_1	Cloud Height	A, E, F	000-999	Base of lowest layer in hundreds of feet.
57-59	hhh_2	" "	" "	" "	Base of 2nd layer.
63-65	hhh_3	" "	" "	" "	Base of 3rd layer.
69-71	hhh_4	" "	" "	" "	Base of 4th layer.
73-74	T_{sea}	Sea Water Tempera-ture, °F.	A	00-99	In whole degrees Fahrenheit.
75-76	d_w	True Wave Direction	A	00-36	Closest 10° or 36 points. (xx = confused condition). (00 = calm).
77-78	P_w	Period of Waves	A	0-99	In seconds. (xx = confused condition).
79-80	H_w	Height of Waves	A	00-99	Mean maximum height of waves in feet.

NOTES

A - Missing data indicated on card by blanks in the appropriate columns.

B - Ceiling (cols. 18-20).
The ceiling is the height ascribed to the lowest layer or layers of clouds or obscuring phenomena (not classified as a "thin" sky condition, thin or partial obscuration), and obscures more than 1/2 of the sky. For obscurations, the vertical visibility into the obscuring phenomena is reported rather than the height of the base. After 9/1/56, cirro type clouds with estimated ceilings were reported and punched as 888.

C - Sky Condition (cols. 21-24).
(1) Provisions have been made for punching 4 sky symbols for four layers of sky cover, including clouds or obscuring phenomena. The layers are punched in ascending order of elevation. When less than 4 sky cover symbols were reported, those reported were punched starting with the 1st layer in col. 21. Any remaining columns to the right of the highest reported symbol was punched 0. The layers above an opaque, overcast, or obscuration, were also punched 0. When more than 4 sky (and cloud) conditions were reported, the last (highest) symbol was punched in col. 24. The first 3 symbols were punched in cols. 21 thru 23, unless the ceiling symbol is thereby excluded; in this case, ceiling symbol was punched in col. 23, and the first 2 (lowest) symbols were punched in cols. 21 and 22. (2) Partial or thin obscuration (-x) col. 21, was left blank. A layer became classified as "thin" if the ratio of opaque coverage is 1/2 or less of the total coverage. Succeeding sky symbols were punched in cols. 22-24. If (-x) reported alone, 000 was punched in cols. 22-24. (3) Clear punched as 0000.

D - Total Cloud Amount, or Amount of Clouds (cols. 49, 50, 55, 60, 61, 66, 67, 72).
In tenths. 0 = clear or less than 1/10 cloudiness or obscuration. "x" = 9/10+ or 10/10 cloudiness or obscuration.

E - Clouds (cols. 50-71).
Provisions have been made to punch 4 layers of clouds and/or obscuring phenomena existing at one time. If more than 4 layers are reported, only the four lowest layers are punched. The layers were punched in ascending order of elevation. Card cols. punched 50-54 are the lowest layer, cols. 55-59, second layer, cols. 61-65, third layer, and cols. 67-71, fourth layer. The amount, type, and height is punched for each layer. Also the summation amounts of layers 1 and 2 (if reported) in col. 60; and layers 1, 2 and 3 in col. 66 (if reported). If two or more types of clouds or obscuring phenomena were observed at the same height, the amounts were combined and the predominating type was punched. When any layer was obscured by a lower layer of opaque clouds or obscuring phenomena, that or higher layers were left blank on the card.

F - Cloud Height (cols. 52-54, 57-59, 63-65, 69-71).
xxx is punched in height if the amount reported as clear or few clouds was punched as 0. 888 = height of cirro type clouds with estimated height effective 9/1/56.

Table 1

Octant of Globe (Col. 11)

Octant	North Latitude
0	0° W. to 90° W.
1	90° W. to 180°W.
2	180°W. to 90° E.
3	90° E. to 0° E.
	South Latitude
5	0° W. to 90° W.
6	90° W. to 180°W.
7	180°E. to 90° E.
8	90° E. to 0° E.

Table 2

Sky Condition (Cols. 21-24)

Code	Symbol	Definition
0	○	Clear or no other sky condition.
1	⊖	Thin scattered, 1/10 thru 5/10 cloudiness.
2	⊖	Mod. scattered, 1/10 thru 5/10 cloudiness.
3	⊖	Thick scattered, 1/10 thru 5/10 cloudiness.
4	⊕	Thin broken, 5/10+ thru 9/10+ cloudiness.
5	⊕	Mod. broken, 5/10+ thru 9/10+ cloudiness.
6	⊕	Thick broken, 5/10+ thru 9/10+ cloudiness.
7	⊕	Thin overcast, 10/10 cloudiness.
8	⊕	Mod. overcast, 10/10 cloudiness.
9	⊕	Thick overcast, 10/10 cloudiness.
Blank	-X	Thin obscuration.
x	X	Thick obscuration.
Examples:		
(1)	0000	Clear
(2)	B000	Thin or partial obscuration alone. (B = Blank).
(3)	x000	Thick obscured alone.
(4)	1480	

Table 3

Visibility (Cols. 25-27)

Code	Definition
000 to 006	0 to 3/8 nautical mile in 1/16 mile increments.
006 thru 009	3/8 thru 3/4 nautical mile in 1/8 mile increments.
010 thru 027	1 thru 2-1/2 nautical miles in 1/2 mile increments.
030 thru 150	3 thru 15 nautical miles in 1 mile increments.
150 thru 950	15 thru 95 nautical miles in 5 mile increments.
Two additional fractions 7/8 and 1-7/8 were reported and were punched as 3/4 and 1-3/4, respectively.	

Table 4

Present Weather (Cols. 28-35)

Col. 28		Col. 29		Col. 30		Col. 31	
Code	Definition	Code	Definition	Code	Definition	Code	Definition
0	No thunderstorm or tornado.	0	No precipitation listed below.	0	No precipitation listed below.	0	No precipitation listed below.
1	(T) Thunder.	1	(R-) Light rain.			1	(S-) Light snow.
2	(T+) Heavy thunder.	2	(R) Mod. rain.			2	(S) Mod. snow.
3	(Tor)Tornado or waterspout	3	(R+) Heavy rain.			3	(S+) Heavy snow.
		4	(RW-) Light rain showers.	4	(L-) Light drizzle.	4	(SP-) Light snow pellets.
		5	(RW) Mod. rain showers.	5	(L) Mod. drizzle.	5	(SP) Mod. snow pellets.
		6	(RW+) Heavy rain showers.	6	(L+) Heavy drizzle.	6	(SP+) Heavy snow pellets.
		7	(ZR-) Light freezing rain.	7	(ZL-) Light freezing rain.	7	(IC-) Light ice crystals.
		8	(ZR) Mod. freezing rain.	8	(ZL) Mod. freezing rain.	8	(IC) Mod. ice crystals.
		9	(ZR+) Heavy freezing rain.	9	(ZL+) Heavy freezing rain.	9	(IC+) Heavy ice crystals.

Col. 32		Col. 33		Col. 34		Col. 35	
Code	Definition	Code	Definition	Code	Definition	Code	Definition
0	No precipitation listed below.	0	No precipitation listed below.	0	No obscuration to vision listed below.	0	No obscuration to vision listed below.
1	(SW-) Light snow showers.	1	(E-) Light sleet.	1	(F) Fog.	1	(K) Smoke.
2	(SW) Mod. snow showers.	2	(E) Mod. sleet.	2	(IF) Ice fog.	2	(H) Haze.
3	(SW+) Heavy snow showers.	3	(E+) Heavy sleet.	3	(GF) Ground fog.	3	(KH) Smoke and haze.
7	(SG-) Light snow grains.	4	(A-) Light hail.	4	(BD) Blowing dust.	4	(D) Dust.
8	(SG) Mod. snow grains.	5	(A) Mod. hail.	5	(BN) Blowing sand.	5	(BS) Blowing snow.
9	(SG+) Heavy snow grains.	6	(A+) Heavy hail.			6	Blowing spray.
		7	(AP-) Light soft hail.				
		8	(AP) Mod. soft hail.				
		9	(AP+) Heavy soft hail.				

Table 5

Wind Direction (Cols. 43-44)			
Code	Direction	Code	Direction
00	Calm	55	S
11	North	56	SSW
12	NNE	66	SW
22	NE	76	WSW
32	ENE	77	W
33	E	78	WNW
34	ESE	88	NW
44	SE	18	NNW
54	SSE		

Table 6

Cloud Type (Cols. 51, 56, 62, 68)

Code	Definition	Code	Definition
x	Obscuration phenomena other than fog.		"x" overpunch
0	None or less than 1/10.	x/2	Fractostratus (Fs)
1	Fog (F)	x/4	Fractocumulus (Fc)
2	Stratus (St)	x/5	Cumulomammatus (Cm)
3	Stratocumulus (Sc)	x/6	Nimbostratus (Ns)
4	Cumulus (Cu)	x/7	Altocumulus castellatus (Acc)
5	Cumulonimbus (Cb)	x/9	Cirrocumulus (Cc)
6	Altostratus (As)		
7	Altocumulus (Ac)		
8	Cirrus (Ci)	Blank	Missing or unknown data.
9	Cirrostratus (Cs)		