U.S. MERCHANT MARINE AND OTHER SHIP OBSERVATIONS, 1949-

This reference manual was prepared for use with punched card deck 116, produced from several sources. For U. S. Merchant Marine ships, observations were recorded on Forms 1210 AB for 1949 and 1950, and Forms 1210 F beginning in 1951, source 912. Observations of the stationary weather ships in both the Atlantic and Pacific Oceans, and observations of Navy ships with aerographer aboard were also recorded on this form. Some observations, when unavailable from other sources, were punched from teletype data, source 987. Beginning 1 January 1951, cards from stationary weather ships were punched aboard the respective ships. All other cards were punched by the Weather Bureau. All forms were carefully edited before punching.

Weather Elements Recorded

For the years 1949 and 1950 the following weather elements when reported were punched:

- Total cloud amount in tenths
- Total cloud amount in eighths
- Wind direction
- Wind velocity
- Beaufort wind force
- Visibility
- Present weather
- Past weather
- Sea-level pressure in millibars
- Air temperature
- Amount in tenths and eighths and type and height of significant cloud layer
- Dew point temperature
- Total amount low clouds in tenths
- Total amount low clouds in eighths
- Type of low cloud
- Height of low cloud in hundreds feet
- Height of low cloud in code figure
- Type of middle cloud
- Type of high cloud
- Ships course, and speed
- Pressure tendency and amount of change during past three hours
- Dry bulb temperature
- Wet bulb temperature
- Temperature of the sea water
- Direction, period and height of waves

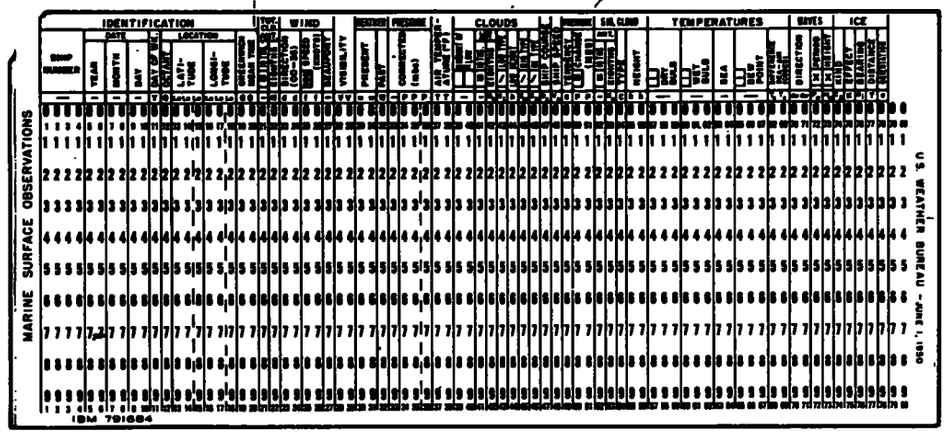
Beginning 1 January 1951 when the new ships' Form 1210 F went into effect, the following weather elements were omitted: Total amount of clouds in tenths, height of low clouds in hundreds of feet, total amount of low clouds in tenths, and the amount, type and height of the significant cloud layer.

General Practices

Cards were punched with the ships' barometer number (if available), year, month, day, day of week, octant of globe, and latitude and longitude. Hours used were 0000, 0600, 1200, and 1800 GCT. Beginning January 1951, cards were punched for the hours 0000, 0300, 0600, 0900, 1200, 1500, 1800, and 2100 GCT for the stationary weather ships. Columns for which data were missing or obviously erroneous were left blank.

Form of Punch Card Used

The first 79 columns of standard punch card IBM #791684 were used. Sample card is shown below:



CARD CONTENT					SOURCE CONTENT	
Columns	Item	Code	Code Definition	Remarks	Units or Symbols	Reporting and Coding Practices
1	No Ship Number	X	X overpunch in Col 1 for Drifter Ships	An X punched in Column 1, with Columns 2-4 blank, indicates that card was punched for Northern Hemisphere Project, from teletype data. Column 79 is blank, unless data is for a fixed ship, in which case, column 79 is punched 4.		
1-2	Ship Number	00-99	Ship number for fixed ships	Column 79 punched 4.		A two digit ship number arbitrarily assigned to identify the ship which is on location, or travelling to or from the fixed ship positions.
3-4	Station Number	00	Ship not on station			A two digit station number arbitrarily assigned to identify the fixed positions in the ocean at which various ships are located for the purpose of taking regular observations.
		01-99	Station number for fixed ships			
1-4	Ship Number	0000-9999 Blank	Ship number for non-fixed ships No Bar. Number	Column 79 punched 1-3, or 5; if 5, indicating a Naval Vessel and the ship number was less than 4 digits, the remaining columns to the left were not punched.		For merchant ships this is usually the serial number of the barometer aboard. For Naval ships, it is the actual ship number. Otherwise, arbitrary numbers were assigned.
						List of these ship numbers are maintained by the USWB
5-6	Year	49-99	1949 on			Year is in Greenwich Mean Time.
7-8	Month	01-12	January - December			Month is in Greenwich Mean Time.
9-10	Day	01-31	Day of Month			Day is in Greenwich Mean Time.
11	Day of the Week	1	Sunday		Y	Day of the week is in Greenwich Mean Time. When hour is coded 00 (Midnight), day of the week is coded as the day just beginning.
		2	Monday			
		3	Tuesday			
		4	Wednesday			
		5	Thursday			
		6	Friday			
		7	Saturday			
12	Octant	0	0° to 90°W	Northern Hemisphere.	Q	
		1	90° to 180°W 1010			
		2	180° to 90°E			
		3	90° to 0°E			
		5	0° to 90°W	Southern Hemisphere.		
		6	90° to 180°W			
		7	180° to 90°E			
		8	90° to 0°E			
13-15	Latitude	000-900	0.0° to 90.0°N	Column 12 punched 0-3.	$L_aL_aL_a$	
		000-900	0.0° to 90.0°S	Column 12 punched 5-8.		
16-18	Longitude	000-999	0.0° to 99.9°W	Column 12 punched 0, 1, 5, 6	$L_oL_oL_o$	
		000-800	100.0° to 180.0°W	Column 12 punched 1 or 6.		
		000-999	0.0° to 99.9°E	Column 12 punched 2, 3, 7, 8.		
		000-800	100.0° to 180.0°E	Column 12 punched 2 or 7.		
				Hundreds digit omitted in reporting and punching values from 100° to 180°.		
19-20	Greenwich Mean Time	00-23	00 - 23 hours GMT	00 = Midnight of Day Beginning.	GG	Usually recorded every 3 or 6 hours.
21	Total Cloud Amount (Tenths)	0	No Clouds		N	In many cases either column 21 or column 22 is punched with about 10% of the cards punched in both columns.
		1	1/10 or less of the sky covered	Includes few or fragments of clouds.		
		2	2/10 of the sky covered			
		3	3/10 of the sky covered			
		4	4/10 of the sky covered			
		5	5/10 of the sky covered			
		6	6/10 of the sky covered			
		7	7/10 of the sky covered			
		8	8/10 of the sky covered			
		9	9/10 of the sky covered	Includes overcast with breaks (BINOVC)		
		X	Total Sky Covered	Overcast		
		Blank	Sky obscured or unknown			

CARD CONTENT					SOURCE CONTENT	
Columns	Item	Code	Code Definition	Remarks	Units or Symbols	Reporting and Coding Practices
22	Total Cloud Amount (Eighths)	0	No clouds			
		1	1/8 of the sky covered	< 1/10 to 1/10 of the sky covered.		
		2	2/8 of the sky covered	2/10 to 3/10 of the sky covered.		
		3	3/8 of the sky covered	4/10 of the sky covered.		
		4	4/8 of the sky covered	5/10 of the sky covered.		
		5	5/8 of the sky covered	6/10 of the sky covered.		
		6	6/8 of the sky covered	7/10 to 8/10 of the sky covered.		
		7	7/8 of the sky covered	9/10 of the sky covered.		
		8	8/8 of the sky covered	Overcast.		
		9	Sky obscured			
		Blank	Unknown			
23-24	Wind Direction	00	Calm	Hundreds and tens digits of the true wind direction (dd)	C	Recorded in tens of degrees or to 16 points, which were converted to tens of degrees before punching.
		01	005° to 014°			
		02	015° to 024°		NNE	
		03	025° to 034°			
		04	035° to 044°			
		05	045° to 054°		NE	
		06	055° to 064°			
		07	065° to 074°		ENE	
		08	075° to 084°			
		09	085° to 094°		E	
		10	095° to 104°			
		11	105° to 114°		ESE	
		12	115° to 124°			
		13	125° to 134°			
		14	135° to 144°		SE	
		15	145° to 154°			
		16	155° to 164°		SSE	
		17	165° to 174°			
		18	175° to 184°		S	
		19	185° to 194°			
		20	195° to 204°		SSW	
		21	205° to 214°			
		22	215° to 224°			
		23	225° to 234°		SW	
		24	235° to 244°			
		25	245° to 254°		WSW	
		26	255° to 264°			
		27	265° to 274°		W	
		28	275° to 284°			
		29	285° to 294°		WNW	
		30	295° to 304°			
		31	305° to 314°			
		32	315° to 324°		NW	
		33	325° to 334°			
		34	335° to 344°		NNW	
		35	345° to 354°			
		36	355° to 360°		N	
			000° to 004°			
		Blank	Unknown, No Observation			
25-26	Wind Speed	00-99	0 to 199 Knots	An X-punch in column 25 indicates that 100 knots are to added to the punched wind speed.	ff	Ships with anemometers report winds in knots as true wind speeds. Those without instruments for measuring wind speeds have estimated the Beaufort number and used the code for wind speeds which follow in the description of column 27. Punching is either way or both.

CARD CONTENT						SOURCE CONTENT		
Columns	Item	Code	Code Definition	Remarks		Units or Symbols	Reporting and Coding Practices	
27	Beaufort Wind Force	0	Calm	Force 0	Approximate Wind Speed 00		Where Beaufort Force alone was entered on Form 1210AB, column 27 alone was punched.	Equivalent Speed in Knots Less than 1 knot
		1	Light Airs	Force 1	02			1- 3 knots
		2	Light Breeze	Force 2	05			4- 6 knots
		3	Gentle Breeze	Force 3	09			7-10 knots
		4	Moderate Breeze	Force 4	13			11-16 knots
		5	Fresh Breeze	Force 5	18			17-21 knots
		6	Strong Breeze	Force 6	24			22-27 knots
		7	High wind or Moderate Gale	Force 7	30			28-33 knots
		8	Gale of Fresh Gale	Force 8	37			34-40 knots
		9	Strong Gale	Force 9	44			41-47 knots
		10	Whole Gale	Force 10 Punched as X over 0	52			48-55 knots
		11	Storm	Force 11 Punched as X over 1	60			56-63 knots
		12	Hurricane	Force 12 Punched as X over 2	68			64 knots
		Blank	Unknown					
28-29	Visibility		Nautical miles:			VV	Either system of reporting (codes 00-89 or codes 90-99) may have been used.	
		00	Less than 1/8					
		01	1/8 and 3/16					
		02	1/4					
		03	3/8					
		04	1/2					
		05	5/8					
		06	3/4					
		09	1					
		11	1 1/4					
		13	1 1/2					
		16	1 3/4					
		18	2					
		20	2 1/4					
		23	2 1/2					
		27	3					
		37	4					
		46	5					
		55	6					
		64	7					
		74	8					
		80	9 and 10					
		81	11 to 20, inclusive					
		82	25 and 30					
		83	35 and 40					
		84	45 and 50					
		85	55 to 90, inclusive					
		86	95 to 105, inclusive					
		87	110 to 160, inclusive					
		88	165 to 265, inclusive					
		89	270 or more					
		90	Visibility Range < 50 yds. (50 m.)					
		91	Range 50 yards	Objects visible between 50 - 199 yards.				
		92	Range 200 yards	Objects visible between 200 - 499 yards				
		93	Range 1/4 Nautical mi.	Objects visible at 1/4 mile but not at 1/2 mile.				
		94	Range 1/2 Nuatical mi.	Objects visible at 1/2 mile but not at 1 mile.				

CARD CONTENT					SOURCE CONTENT	
Columns	Item	Code	Code Definition	Remarks	Units or Symbols	Reporting and Coding Practices
28-29	Visibility (Continued)	95	Range 1 nautical mile	Objects visible at 1 mile but not at 2 miles.		
		96	Range 2 nautical miles	Objects visible at 2 miles but not at 5 miles.		
		97	Range 5 nautical miles	Objects visible at 5 miles but not at 10 miles.		
		98	Range 10 nautical miles	Objects visible at 10 miles but not at 25 miles.		
		99	Visibility Range ≥ 25 nautical miles	Objects visible at 25 miles or more.		
		Blank	Unknown			
30-31	Present Weather	00-49		No precipitation at the station at the time of observation.	ww	
		00-19		No precipitation, fog, duststorm, sandstorm or drifting snow at the ship at the time of observation or during the preceding hour, except for 09.		
		00-03	No hydrometeors except clouds	Characteristic change of the state of the sky during the past hour.		
		00	Cloud development not observed or not observable			
		01	Clouds generally disolving or becoming less developed			
		02	State of the sky on the whole unchanged			
		03	Clouds generally forming or developing			
		04-09	Haze, dust, sand or smoke			
		04	Visibility reduced by smoke	e.g., Veldt or forest fires, industrial smoke, or volcanic ashes.		
		05	Dry haze			
		06	Widespread dust in suspension in the air	Near the ship at time of observation, not raised by wind.		
		07	Dust or sand raised by wind	At or near ship at the time of observation, but no well developed dust devil(s) and no duststorm or sandstorm seen.		
		08	Well developed dust devil(s)	Seen at or near ship within the last hour, but no duststorm or sandstorm seen.		
		09	Duststorm or sandstorm	Within sight of ship or at ship during the last hour.		
		10	Light fog	Visibility 1,000 m.; 1100 yards or more.		
		11	Patches of shallow fog	At the ship, not deeper than 33 feet.		
		12	Moreorless continuous shallow fog			
		13	Lightning visible	No thunder heard.		
		14	Precipitation within sight	But not reaching ground at ship.		
		15	Precipitation within sight	Reaching ground but distant (estimated to be > 3 miles from ship.)		
		16	Precipitation within sight, reaching sea	Near to, but not at ship.		
		17	Thunder heard	No precipitation at the ship.		
		18	Squall(s) within sight	During the past hour.		
		19	Funnel cloud(s) in sight	During the past hour (Tornado or waterspout).		
		20-29	Precipitation, Fog or Thunderstorm	At the ship during the preceding hour but not at the time of observation.		
		20	Drizzle (not freezing)	Not falling as showers.		
		21	Rain (Not freezing)			
		22	Snow			
		23	Rain and snow			

CARD CONTENT					SOURCE CONTENT	
Columns	Item	Code	Code Definition	Remarks	Units or Symbols	Reporting and Coding Practices
30-31	Present Weather (Continued)	24	Freezing drizzle or freezing rain			
		25	Shower(s) of rain			
		26	Shower(s) of snow or of rain and snow			
		27	Shower(s) of hail or of hail and rain			
		28	Fog			
		29	Thunderstorm	With or without precipitation.		
		30-39	Duststorm, sandstorm or drifting snow			
		30	Slight or moderate duststorm or sandstorm	Has decreased during the preceding hour.		
		31		No appreciable change during the preceding hour.		
		32		Has increased during the preceding hour.		
		33	Severe duststorm or sandstorm	Has decreased during the preceding hour.		
		34	Severe duststorm or sandstorm	No appreciable change during the preceding hour.		
		35		Has increased during the preceding hour.		
		36	Slight or moderate drifting snow	Generally low.		
		37	Heavy drifting snow			
		38	Slight or moderate drifting snow	Generally high.		
		39	Heavy drifting snow			
		40-49	Fog	At the time of observation.		
		40	Fog at a distance	At the time observation, but not at the ship during the last hour, the fog extending to a level above that of the observer.		
		41	Fog in patches			
		42	Fog, sky discernable	Has become thinner during the preceding hour.		
		43	Fog, sky not discernable			
		44	Fog, sky discernable	No appreciable change during the preceding hour.		
		45	Fog, sky not discernable			
		46	Fog, sky discernable	Has begun or has become thicker during the preceding hour.		
		47	Fog, sky not discernable			
		48	Fog depositing rime	Sky discernable.		
		49		Sky not discernable.		
		50-99	Precipitation at the ship	At the time of observation.		
		50-59	Drizzle	At the time of observation.		
		50	Drizzle, not freezing, intermittent	Slight at the time of observation.		
		51	Drizzle, not freezing, continuous	Slight at the time of observation.		
		52	Drizzle, not freezing, intermittent	Moderate at the time of observation.		
		53	Drizzle, not freezing, continuous			
		54	Drizzle, not freezing, intermittent	Thick at the time of observation.		
		55	Drizzle, not freezing, continuous			
		56	Drizzle, freezing,	Slight		
		57		Moderate or thick.		

CARD CONTENT					SOURCE CONTENT	
Columns	Item	Code	Code Definition	Remarks	Units or Symbols	Reporting and Coding Practices
30-31	Present Weather (Continued)	58	Drizzle and rain	Slight		
		59		Moderate or heavy		
		60-69	Rain	At the time of observation		
		60	Rain, not freezing, intermittent	Slight at time of observation		
		61	Rain, not freezing, continuous			
		62	Rain, not freezing, intermittent	Moderate at time of observation		
		63	Rain, not freezing, continuous			
		64	Rain, not freezing, intermittent	Heavy at time of observation		
		65	Rain, not freezing, continuous			
		66	Rain, freezing	Slight		
		67		Moderate or heavy		
		68	Rain, or drizzle and snow	Slight		
		69		Moderate or heavy		
		70-79	Solid Precipitation	Not in showers at time of observation.		
		70	Intermittent fall of snow flakes	Slight at time of observation.		
		71	Continuous fall of snow flakes			
		72	Intermittent fall of snow flakes	Moderate at time of observation.		
		73	Continuous fall of snow flakes			
		74	Intermittent fall of snow flakes	Heavy at time of observation.		
		75	Continuous fall of snow flakes			
		76	Ice needles	With or without fog.		
		77	Granular snow			
		78	Isolated starlike snow crystals			
		79	Ice pellets			
		80-99	Showery precipitation	Or precipitation with current or recent thunderstorm.		
		80	Rain shower(s)	Slight		
		81		Moderate or heavy		
		82		Violent		
		83	Shower(s) of rain and snow mixed	Slight		
		84		Moderate or heavy		
		85	Snow shower(s)	Slight		
		86		Moderate or heavy		
		87	Shower(s) of soft or small hail, with or without rain or rain and snow mixed	Slight		
		88		Moderate or heavy		
		89	Shower(s) of hail with or without rain or rain and snow mixed, not associated with thunder	Slight		
		90		Moderate or heavy		

CARD CONTENT					SOURCE CONTENT	
Columns	Item	Code	Code Definition	Remarks	Units or Symbols	Reporting and Coding Practices
30-31	Present Weather (Continued)	91	Slight rain	At time of observation, thunderstorm during the preceding hour but not at time of observation. *Hail, small hail, soft hail.		
		92	Moderate or heavy rain			
		93	Slight snow or rain and snow mixed or hail*			
		94	Moderate or heavy snow or rain and snow mixed or hail*			
		95	Thunderstorm, slight or moderate without hail* but with rain and/or snow	At time of observation. Thunderstorm at time of observation.		
		96	Thunderstorm, slight or moderate, with hail*	*Hail, small hail, soft hail.		
		97	Thunderstorm, heavy, without hail* but with rain and/or snow			
		98	Thunderstorm combined with duststorm or sandstorm			
		99	Thunderstorm, heavy, with hail*			
		Blank	Unknown			
32	Past Weather	0	Clear or few clouds		W No symbol	For 00, 06, 12 and 1800 Greenwich Civil Time reports, the code figure entered for past weather covers the preceding 6 hours. For 03, 09, 15, and 2100 Greenwich Civil Time reports, the code figure represents the 3 hour period prior to the observation.
		1	Partly cloudy or variable clouds			
		2	Cloudy or overcast			
		3	Sandstorm or duststorm or drifting of blowing snow			
		4	Fog, smoke or thick dust haze			
		5	Drizzle			
		6	Rain			
		7	Snow or rain and snow mixed or sleet			
		8	Shower(s)			
		9	Thunderstorm with or without precipitation			
		Blank	Unknown			
33-36	Pressure Corrected (MBS)	0000-0700	1000.0 - 1070.0 mb	Hundreds, tens, units, and tenths of millibars	PPP	
		9000-9999	900.0 - 999.9 mb			
		Blank	Unknown			
37-38	Air Temperature	00-99	00° to 99°F or 100° to 199°F	Tens and units of degrees fahrenheit. An X overpunch in column 37 indicates temperatures below 0°F while temperatures above 100°F are punched by dropping the hundreds digit.	TT	
		X X 01 - 99	-01° to -99°F			
		Blank	Unknown			
39-40	Height of Low clouds	00	Less than 100 feet MSL			
		01-80	100 feet MSL to 8000 feet MSL			
		XX	No low clouds or no clouds below 8000 feet			
		Blank	Sky obscured or missing observation			

CARD CONTENT					SOURCE CONTENT	
Columns	Item	Code	Code Definition	Remarks	Units or Symbols	Reporting and Coding Practices
41	Amount of Low Cloud (Tenths)	0-9	0/10 to 9/10 of the sky covered			
		X	10/10	Overcast		
		Blank	Obscured or missing			
42	Amount of Low Cloud (Eighths)	0-8	0/8 to 8/8 of the sky covered		N_h	
		9	Sky obscured			
		Blank	Unknown			
43	Type of Low Cloud	0	No low cloud	No stratocumulus, stratus, cumulus or cumulonimbus clouds	C_L	
		1	Cumulus Humilis	Cumulus with little vertical development and seemingly flattened.		
		2	Cumulus congestus with or without cumulus humilis or stratocumulus at the same level of base	Cumulus of considerable development, generally towering, with or without other cumulus or stratocumulus; bases all at the same level.		
		3	Cumulonimbus calvus, with or without cumulus, stratocumulus or stratus	Cumulonimbus with tops lacking clearcut outlines, but distinctly not cirriform or anvil-shaped; with or without cumulus, stratocumulus or stratus.		
		4	Stratocumulus Cumulogenitus or Vesperalis	Stratocumulus formed by the spreading out of cumulus; cumulus also often present.		
		5	Stratocumulus other than cumulogenitus and vesperalis	Stratocumulus not formed by the spreading out of cumulus.		
		6	Stratus and/or fractostratus but not fractostratus of bad weather	Stratus or fractostratus or both but not fractostratus of bad weather.		
		7	Fractostratus and/or fractocumulus of bad weather ("Scud") usually under altostratus and nimbostratus	By "Bad Weather" is meant the conditions usually prevailing before, during or after precipitation.		
		8	Cumulus humilis or congestus and stratocumulus other than cumulogenitus and vesperalis with bases at different levels	Cumulus and stratocumulus other than those formed by the spreading out of cumulus, with bases at different levels.		
		9	Cumulonimbus capillatus (often with anvil) with or without cumulus, stratocumulus, stratus, or "Scud"	Cumulonimbus having a clearly fibrous (cirriform) top, often anvil-shaped, with or without cumulus, stratocumulus, stratus or "scud".		
		X	Sky obscured			When the sky is obscured by rain, snow, fog, duststorm, smoke or other phenomena and the low cloud type could not be observed, an X was punched in column 43.
		Blank	Unknown			
44	Height of Low Cloud	0	0 ft to 150 ft MSL	0 meters to 50 meters, mean sea level.		If the height of the base of the low cloud was exactly equal to the upper limit of a code group, the next higher code figure was used. When the sky was obscured or clouds could not be observed, code figure 0 was used.
		1	150 ft to 300 ft MSL	50 meters to 100 meters, mean sea level.		
		2	300 ft to 600 ft MSL	100 M - 200 M		
		3	600 ft to 1000 ft MSL	200 M - 300 M		
		4	1000 ft to 2000 ft MSL	300 M - 600 M		
		5	2000 ft to 3000 ft MSL	600 M - 1000M		

CARD CONTENT					SOURCE CONTENT	
Columns	Item	Code	Code Definition	Remarks	Units or Symbols	Reporting and Coding Practices
44	Height of Low Cloud (Continued)	6	3000 ft to 5000 ft MSL	1000 Meters to 1500 Meters, mean sea level.		
		7	5000 ft to 6500 ft MSL	1500 M - 2000 M		
		8	6500 ft to 8000 ft MSL	2000 M - 2500 M		
		9	No low cloud below 8000 ft MSL	No low cloud below 2500 meters, mean sea level.		
		Blank	Unknown			
45	Type of Middle Cloud	0	No middle cloud	No altocumulus, altostratus or nimbostratus clouds.	C_M	
		1	Altostratus translucidus	Thin altostratus (semi-transparent everywhere) through which the sun or moon would be seen dimly as through ground glass.		
		2	Altostratus opacus or nimbostratus	Thick altostratus or nimbostratus (through portions of the sheet the position of the sun or moon may be indicated by a light patch).		
		3	Altocumulus translucidus more or less stable and at a single level	Thin (semi-transparent) altocumulus, cloud elements not changing much; at a single level.		
		4	Altocumulus translucidus in patches (often lenticular) continually transforming and/or occuring at different levels	Thin (semi-transparent) altocumulus in patches (often almond or fish-shaped); cloud elements continually changing and/or occurring at more than one level.		
		5	Altocumulus translucidus in bands or in a layer systematically invading the sky and usually thickening as a whole, even partly into altocumulus opacus or duplicatus	Thin (semi-transparent) altocumulus in banks or in a layer gradually spreading over the sky and usually thickening as a whole, it may become partly opaque or double-layered.		
		6	Altocumulus cumulogenitus	Altocumulus formed by the spreading out of cumulus.		
		7	Altocumulus duplicatus or opacus, not increasing; or altostratus and altocumulus	Any of the following cases: (a) Double-layered altocumulus, usually opaque in parts, not increasing. (b) A thick (opaque) layer of altocumulus, not increasing. (c) Altostratus and altocumulus both present at the same or different levels.		
		8	Altocumulus cumuliformis (floccus or castellatus)	Altocumulus in the form of cumulus-shaped tufts or altocumulus with turrets.		
		9	Altocumulus or a chaotic sky; generally at different levels, cirrus densus in patches usually present	Altocumulus of a chaotic sky; generally at different levels; dense cirrus in patches is usually also present.		
		X	Sky obscured			When the sky was obscured by rain, snow, fog, duststorm, smoke or other phenomena and type of middle cloud could not be observed, an X was punched in column 45.
		Blank	Unknown			
46 & 47	Type of High Cloud	0	No high clouds	No cirrus, cirrocumulus, or cirrostratus clouds.	C_H	
		1	Cirrus filosus, scattered and not increasing	Filaments or strands of cirrus, scattered and not increasing (often "mares' tails")		

CARD CONTENT					SOURCE CONTENT	
Columns	Item	Code	Code Definition	Remarks	Units or Symbols	Reporting and Coding Practices
46	Type of High Cloud (Continued)	2	Cirrus densus in patches or twisted sheaves usually not increasing, sometimes presumably being the remains of the upper part of a cumulonimbus	Dense cirrus in patches or twisted sheaves usually not increasing; possibly but not certainly the remains of the upper part of cumulonimbus.		
		3	Cirrus nothus; either the remains of cumulonimbus or part of a distant cumulonimbus the rest of which is not visble.	Cirrus, often anvil-shaped; either the remains of the upper portions of cumulonimbus or part of a distant cumulonimbus the rest of which is not visble.		If there was any doubt as to the cumulonimbus orgin or association, type of high cloud code 2 was used.
		4	Cirrus (often cirrus uncimus) systematically invading the sky and usually thickening as a whole	Cirrus (often hook-shaped) gradually spreading over the sky and usually thickening as a whole.		
		5	Cirrus, often in polar bands, and/or cirrostratus systematically invading the sky and usually thickening as a whole, but the continuous layer not reaching 45° altitude	Cirrus and cirrostratus, often in bands converging toward the horizon; or cirrostratus alone; in either case gradually spreading over the sky and usually thickening as a whole, but the continuous layer not reaching 45° altitude.		
		6	Cirrus, often in polar bands, and/or cirrostratus systematically invading the sky and usually thickening as a whole, and the continuous layer exceeding 45° altitude	Cirrus and cirrostratus, often in bands converging toward the horizon; or cirrostratus alone; in either case gradually spreading over the sky and usually thickening as a whole, and the continuous layer exceeding 45° altitude.		
		7	Cirrostratus covering the whole sky			
		8	Cirrostratus not increasing and not covering the whole sky	Cirrus and cirrocumulus may be present.		
		9	Cirrocumulus the dominant cirriform cloud	Cirrocumulus alone or with some cirrus or cirrostratus but the cirrocumulus being the main cirriform cloud present.		
		X	Sky obscured			When the sky was obscured by rain, snow, fog, duststorm, smoke or other phenomena and the type of high cloud could not be observed, an X was punched in column 46.
		Blank	Unknown			
47	Ship's Course	0	Ship hove to		D_s	True direction toward which ship is moving.
		1	Northeast			
		2	East			
		3	Southeast			
		4	South			
		5	Southwest			
		6	West			
		7	Northwest			
		8	North			
		9	No information			
		Blank	Unknown			

CARD CONTENT					SOURCE CONTENT	
Columns	Item	Code	Code Definition	Remarks	Units or Symbols	Reporting and Coding Practices
48	Ship's Speed	C	Ship stopped		V_s	This column is punched with the average speed of the ship during the 3-hour period prior to observation time.
		1	1 to 3 knots			
		2	4 to 6 knots			
		3	7 to 9 knots			
		4	10 to 12 knots			
		5	13 to 15 knots			
		6	16 to 18 knots			
		7	19 to 21 knots			
		8	22 to 24 knots			
		9	> 24 knots			
		Blank	Unknown			
49	Pressure Tendency	0	Rising, then falling	Barometer now higher than, or the same as 3 hours ago.	a	This column is punched with the code figure representing the character of the 3-hour pressure change.
		1	Rising, then steady; or rising, then rising more slowly			
		2	Unsteady			
		3	Steady or rising			
		4	Falling or steady, then rising; or rising then rising more quickly			
		5	Falling, then rising	Barometer now lower than 3 hours ago.		
		6	Falling, then steady; or falling, then falling more slowly			
		7	Unsteady			
		8	Falling			
		9	Steady or rising, then falling; or falling then falling more quickly			
		Blank	Unknown			
50-51	Pressure Change Mbs	00-99	0.0 mbs to 9.9 mbs	The amount of pressure change in the last 3 hours in units and tenths of millibars.	PP	
		X X 00-99	10.0 to 19.9 mbs	For changes greater than 9.9 mbs an X is punched in column 50 and the pressure change in excess of 10.0 mbs is punched in columns 50 and 51.		
		Blank	Unknown	2.9. 9		
52	Significant Cloud Amount (Tenths)	0-9	0/10 to 9/10		N_s	Usually reported only by fixed weather ships. N_s is the amount in tenths of the cloud layer which: (a) is below 20,000 feet and (b) covers more than half the sky. In case that the above did not apply, N_s was: (a) The lowest cloud layer below 20,000 feet regardless of amount of sky cover.
		X	10/10			
		Blank	Sky obscured or unknown			
53	Significant Cloud Amount (Eighths)	0-8	0/8 to 8/8		N_s	Usually reported only by fixed weather ships. See definition of N_s under colum 52.
		9	Sky obscured			
		Blank	Unknown			
54	Type of Significant Cloud	0	Stratus or Fractostratus		C	
		1	Cirrus			
		2	Cirrostratus			
		3	Cirrocumulus			
		4	Altocumulus			
		5	Altostratus			
		6	Stratocumulus			
		7	Nimbostratus			

CARD CONTENT					SOURCE CONTENT	
Columns	Item	Code	Code Definition	Remarks	Units or Symbols	Reporting and Coding Practices
54	Type of Significant Cloud (Cont'd)	3	Cumulus or fractocumulus		C	
		9	Cumulonimbus			
		X	Sky obscured			
		Blank	No clouds or unknown			
55-56	Height of Significant Cloud Layer	00	Lower than 100 feet		h_s h_s	For each code figure 01 to 30 inclusive, the height increases 100 feet. For code figures 90 to 99, a height that is exactly equal to the upper limit of one group is coded as the lower limit of the next higher group.
		01	100 feet			
		02	200 feet			
		03-30	300 feet to 3000 feet			
		31	9000 feet			
		32	not used			
		33	10,000 - 12,000 feet			
		34	13,000 - 15,000 feet			
		35	16,000 - 19,000 feet			
		36	20,000 - 22,000 feet			
		37	23,000 - 25,000 feet			
		38	26,000 - 29,000 feet			
		39	≥ 30,000 feet			
		90	0 feet - 150 feet			
		91	150 feet - 300 feet			
		92	300 feet - 600 feet			
		93	600 feet - 1000 feet			
		94	1000 feet - 2000 feet			
		95	2000 feet - 3000 feet			
		96	3000 feet - 5000 feet			
		97	5000 feet - 6500 feet			
		98	6500 feet - 8000 feet			
		99	8000 feet or more or no clouds			
		Blank	Unknown			
57-59	Dry Bulb Temperature	000-199	0 to 199°F		°F	
		X01-X99	-1 to -99°F			
		Blank	Unknown			
60-62	Wet Bulb Temperature	000-099	0 to 99°F			
		X01-X99	-1 to -99°F			
		Blank	Unknown			
63-64	Sea Temperature	00-99	0°F to 99°F			
		Blank	Unknown			
65-67	Dewpoint Temperature	000-199	0 to 199°F		°F	
		X01-X99	-1 to -99°F			
		Blank	Unknown			
68-69	Difference Sea-Air Temperature	00-49	Air temperature 0° to 49° warmer than sea temperature	These columns are punched infrequently as air-sea temperature differences are easily computed from columns 57-59 and columns 63-64.	T_s T_s	
		50-99	Sea temperature 0° to 49° warmer than air temperature			
70-71	Direction of Waves	01-36	010° to 360°	Wave height ≤ 15 feet.	d_w d_w	Direction from which waves are coming.
		49	Direction indeterminate	Wave height ≤ 15 feet.		
		51-86	10 to 360°	Wave height > 15 feet.		
		99	Direction indeterminate	Wave height > 15 feet.		
		Blank	Unknown			
72	Period of Waves	2	5 seconds or less		P_w	If the exact number of seconds for the period of the waves corresponded to 2 code figures, the lower code figure was punched.
		3	5-7 seconds			
		4	7-9 seconds			
		5	9-11 seconds			
		6	11-13 seconds			

CARD CONTENT					SOURCE CONTENT	
Columns	Item	Code	Code Definition	Remarks	Units or Symbols	Reporting and Coding Practices
72	Period of Waves	7	13-15 seconds		P_w	
		8	15-17 seconds			
		9	17-19 seconds			
		0	19-21 seconds			
		1	Over 21 seconds			
		X	Calm or period unable to be determined			
		Blank	Unknown			
73	Height of Waves			When 50 is added to direction of waves:	H_w	The lower code figure was punched when the wave height was exactly between two code figures.
		0	Less than 1 foot	16 feet		
		1	1 1/2 feet	17 1/2 feet		
		2	3 feet	19 feet		
		3	5 feet	21 feet		
		4	6 1/2 feet	22 1/2 feet		
		5	8 feet	24 feet		
		6	9 1/2 feet	25 1/2 feet		
		7	11 feet	27 feet		
		8	13 feet	29 feet		
		9	14 feet	30 1/2 feet		
		X	Height impossible to determine waves < 14 ft.	Height impossible to determine, waves > 14 feet.		
		Blank	Unknown			
74	Kind of Ice	0	No ice	"0" is used to report "Ice Blink" and then a detailed report follows in columns 75-78.	C_2	In general columns 74-78 are not punched because too few ships reported ice conditions.
		1	Slush or young ice			
		2	Fast ice			
		3	Drift ice			
		4	Packed (compact) slush of strips of hummock ice			
		5	Open lead near shore			
		6	Heavy fast ice			
		7	Heavy drift ice			
		8	Hummocked ice			
		9	Ice jamming			
		Blank	Unknown			
75	Effect of Ice on Navigation	0	Navigation unobstructed		K	
		1	Navigation unobstructed for steamers, difficult for sailing ships			
		2	Navigation difficult for low powered steamers, closed to sailing ships			
		3	Navigation possible only for powerful steamers			
		4	Navigation possible only for steamers constructed to withstand ice pressure			
		5	Navigation possible with the assistance of icebreakers			
		6	Channel open in the solid ice			

CARD CONTENT					SOURCE CONTENT	
Columns	Item	Code	Code Definition	Remarks	Units or Symbols	Reporting and Coding Practices
75	Effect of Ice of Navigation (Continued)	7	Navigation temporarily closed			
		8	Navigation closed			
		9	Navigation conditions unknown (e.g. owing to to bad weather)			
		Blank	Unknown			
76	Bearing of Ice Limit	0	No ice limit can be stated		D_1	
		1	Ice limit towards north-east			
		2	Ice limit towards east			
		3	Ice limit towards south-east			
		4	Ice limit towards south			
		5	Ice limit towards south-west			
		6	Ice limit towards west			
		7	Ice limit towards north-west			
		8	Ice limit towards north			
		9	Ice limit in several directions			
		Blank	Unknown			
77	Distance to Ice Limit	0	up to 1 mile from ship		r	When the exact bounding distance for the ice limit corresponded to 2 code figures, the lower code figure was punched.
		1	1 to 2 miles			
		2	2 to 4 miles			
		3	4 to 6 miles			
		4	6 to 8 miles			
		5	8 to 12 miles			
		6	12 to 16 miles			
		7	16 to 20 miles			
		8	More than 20 miles			
		9	Unspecified or no observations			
		Blank	Unknown			
78	Orientation of Ice Limit	0	Orientation of ice limit impossible to estimate	Ship outside the ice.	e	
		1	Ice edge lying in a Northeast-Southwest Direction	Ice to the northwest.		
		2	Ice edge lying in a east-west direction	Ice to the north.		
		3	Ice edge lying in a southeast-northwest direction	Ice to the northeast.		
		4	Ice edge lying in a south-north direction	Ice to the east		
		5	Ice edge lying in a southwest-northeast direction	Ice to the southeast.		
		6	Ice edge lying in a west-east direction	Ice to the south.		
		7	Ice edge lying in a Northwest-Southeast Direction	Ice to the southwest.		

CARD CONTENT					SOURCE CONTENT	
Columns	Item	Code	Code Definition	Remarks	Units or Symbols	Reporting and Coding Practices
78	Orientation of Ice Limit (Continued)	8	Ice edge lying in a north-south direction	Ice to the west.	e	
		9	Orientation of ice limit impossible to estimate	Ship inside the ice.		
		Blank	Unknown			
79	Barometer Comparison Station or Data Source	1	New York	Indicates station issuing ship's barometer number.		This indicates Deck 116-1,-2, and -3, which consist of observations from U.S. Merchant Marine ships.
		2	New Orleans			
		3	San Francisco			
		4	Stationary weather ship of any country			This indicates Deck 116-4a, which consists of observations from fixed ships on location, and Deck 116-4b, which consists of observations from fixed ships when on route to location, or duplicates if two fixed ships are on location at the same time.
		5	U.S. Naval Vessel			This indicates Deck 116-5, which consists of the 3- or 6- hourly synoptic observations from U.S. Naval Vessels.
		Blank	Teletype data + WB			
80		Blank	Not used	Random punches used for operational purposes.		
Col 79		6	MSTS Ships			
		8	Russian Ice Islands			
		9	Great Lakes.			
		7, X, 0 -	not assigned at this date. 2/27/61			