JAPANESE HYDROGRAPHIC OBSERVATIONS

This reference manual was prepared for use with punched card deck 114, Japanese Hydrographic Observations. The original card deck consisted of approximately 1,500,000 marine observations, compiled from ships logs of the Japanese Navy and Merchant Fleet, and punched on 45-column Powers cards by the Central Meteorological Observatory in Tokyo. The bulk of this card deck was destroyed during World War II, but approximately 220,000 cards were salvaged and reproduced to 80-column IBM cards.

Unfortunately, the personnel responsible for the coding and punching of the original cards are no longer available to answer questions about the types and meanings of codes used. It seems, therefore, that much valuable information may have been lost. This reference manual was produced from the little information that is available, plus some deductions inferred from an examination of the cards.

Particular reference is made to the item punched in column 8, Sea Area. Information from Tokyo indicated that code 6 pertains to the area of east longitude in the Northern Hemisphere, but codes pertaining to other areas were in doubt. Comparison of latitudes and longitudes punched with a global map strongly indicates that code 0 pertains to west longitude in the Northern Hemisphere. Area 1 since it contains latitudes and longitudes duplicated in areas 0 and 6, must therefore lie in the Southern Hemisphere, and it appears to be for west longitudes. There were a few cards for areas 7 and 8, but too few for any practical purpose, and they were intentionally destroyed, along with a few cards in areas 0 and 6 with longitudes less than 110°.

Weather Elements Punched

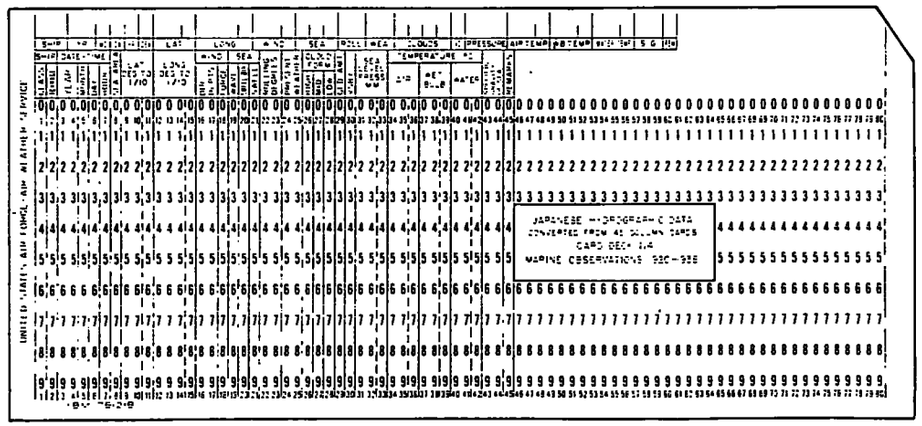
The following elements for which code information is available, are punched: wind velocity, sea wave and swell, direction of swell, angle of rolling of ship, total cloud amount, visibility, sea level pressure, dry bulb, wet bulb, and sea water temperature. Elements punched for which code information is not available are weather, cloud types, specific gravity of sea water, and remarks. However, the last two items named are infrequently punched.

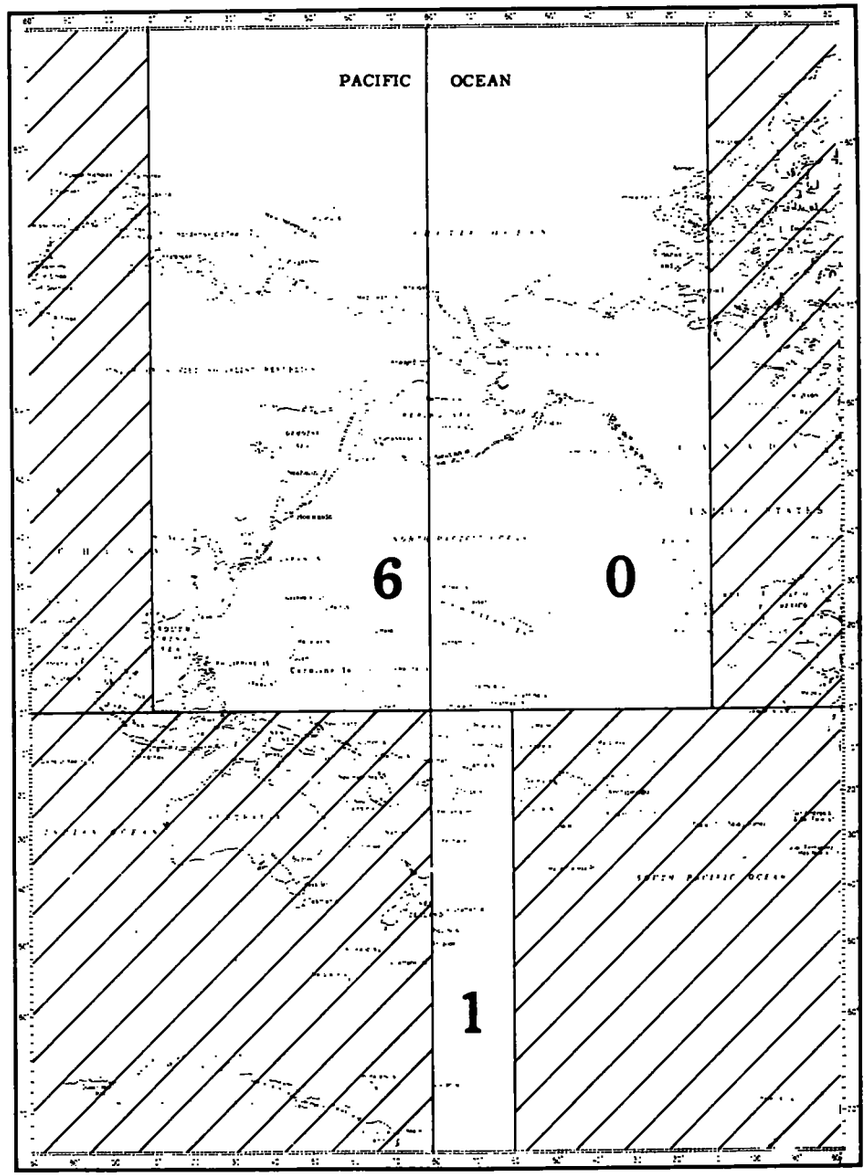
General Practices

Due to the manner in which the cards were obtained, no information is available concerning coding and punching practices which might deviate from normal. Month, day, and hour however are each single column punches using X, Y, and 0 overpunches as necessary. The code definitions shown in the manual are exactly as reported by the Japanese, when queried.

Form of Punch Card Used

The 45 column Power cards were reproduced to 80 column IBM cards, and then destroyed. Columnar arrangement was maintained, except for tenths of latitude and longitude, as noted in the manual. Columns 46-80 remain blank. A sample of the card form is shown below.





CARD CONTENT					SOURCE CONTENT	
Columns	Item	Code	Code Definition	Remarks	Units or Symbols	Reporting and Coding Practices
1	Class of Ship	0	Battleship			
		3	Special service ship			
		4	Merchant or cargo steamer			
		1,2,5-9	Unknown			
2	Tonnage	0	Unknown			
		1	Over 20,000 tons			
		2	10,000 to 20,000 tons			
		3	8,000 to 10,000 tons			
		4	6,000 to 8,000 tons			
		5	4,000 to 6,000 tons			
		6	2,000 to 4,000 tons			
		7	1,000 to 2,000 tons			
		8	500 to 1,000 tons			
		9	Below 500 tons			
		X,Y	Unknown			
3-4	Year	20-38	1920 - 1938			
5	Month	1-9	January - September			
		0	October			
		X	November			
		Y	December			
6	Day	1-9	1st to 9th day	No overpunch		
		0-9	10th to 19th day	Y overpunch		
		0-9	20th to 29th day	X overpunch		
		0-1	30th to 31st day	0 overpunch		
7	Hour	1-9	1st to 9th hour	No overpunch		Time zone used for coding observations is not known.
		0-9	10th to 19th hour	Y overpunch		
		0-4	20th to 24th hour	X overpunch		
8	Sea Area	0	110° to 180° W. Long.	Northern Hemisphere		Information concerning exact limits of sea area is not available, and determination of boundaries was empirical. There seems little doubt about areas 0 and 6, but it cannot be stated with certainty whether area 1 is for west or east longitude or even that it is in the Southern Hemisphere. Since only about one seventh of the original deck was salvaged, there may be serious gaps in area coverage. Of the cards remaining, about 10% are in area 0, 5% in area 1, and 85% in area 6.
		1	160° to 180° W. Long.	Southern Hemisphere		
		6	110° to 180° E. Long.	Northern Hemisphere		
9-11	Latitude	000-900	0.0° to 90.0°	North if col 8 punched 0 or 6, south if punched 1.		Originally punched in tenths of degrees for areas 0 and 1, punched in tens of minutes for area 6. These were converted to tenths in the reproduction of the original deck, as follows: 0 to 1, 1 to 2, 2 to 4, 3 to 6, 4 to 8, 5 to 9.
12-15	Longitude	1100-1800	110.0° to 180.0°	West if col 8 punched 0 or 1, east if punched 6.		
16-17	Wind Direction	00	Calm			
		01	North Northeast			
		02	Northeast			
		03	East Northeast			
		04	East			
		05	East Southeast			
		06	Southeast			
		07	South Southeast			
		08	South			
		09	South Southwest			
		10	Southwest			
		11	West Southwest			
		12	West			
		13	West Northwest			
		14	Northwest			
		15	North Northwest			
		16	North			
		Blank	Unknown			

CARD CONTENT					SOURCE CONTENT	
Columns	Item	Code	Code Definition	Remarks	Units or Symbols	Reporting and Coding Practices
18	Wind Force	0	Less than 1 mph			
		1	1- 3 mph			
		2	4- 7 mph			
		3	8-12 mph			
		4	13-18 mph			
		5	19-24 mph			
		6	25-31 mph			
		7	32-38 mph			
		8	39-46 mph			
		9	47-54 mph			
		Y	55-63 mph			
		X	64 mph or greater			
		Blank	Unknown			
19	Sea Wave	0	Like a mirror			
		1	Little ripples			
		2	Ripples			
		3	A few white crested waves			
		4	White-crested waves all over the sea surface			
		5	Rather high white-crested waves			
		6	Big waves			
		7	High big waves			
		8	Very high waves			
		9	Mountainous waves			
		Blank	Unknown			
20	Direction of Sea Swell	0	No swell			
		1	Northeast			
		2	East			
		3	Southeast			
		4	South			
		5	Southwest			
		6	West			
		7	Northwest			
		8	North			
		9	Confused			
		Blank	Unknown			
21	Sea Swell	0	No swell			
		1	Quite a bit			
		2	A few swells			
		3	Moderate swell			
		4	Rather high swell			
		5	High swell			
		6	Very high swell			
		7	Disastrously high swell			
		Blank	Unknown			
22-23	Rolling	00-90	0 to 90 degrees			Angle of rolling of ship.
		Blank	Unknown			
24-25	Weather		Code Unknown			
26	High Clouds		Code Unknown			
27	Middle Clouds		Code Unknown			
28	Low Clouds		Code Unknown			
29	Total Cloud Amount	0-9	0 to 9 tenths			
		Y	10 tenths			
		Blank	Unknown			

CARD CONTENT					SOURCE CONTENT	
Columns	Item	Code	Code Definition	Remarks	Units or Symbols	Reporting and Coding Practices
30	Visibility	0	Not seen			
		1	Vague			
		2	Clearly seen			
		3	Extremely clear			
		Blank	Unknown			
31-33	Sea Level Pressure	000-999	700.0 to 799.9 mm			Punched as excess above 700.0 millimeters.
		Blank	Unknown			
34-36	Dry Bulb Temperature	000-999	0.0 to 99.9°C	Y overpunch in col 34 indicates minus value.		
		Blank	Unknown			
37-39	Wet Bulb Temperature	000-999	0.0 to 99.9°C	Y overpunch in col 37 indicates minus value.		
		Blank	Unknown			
40-42	Water Temperature	000-999	0.0 to 99.9°C	Y overpunch in col 40 indicates minus value.		
		Blank	Unknown			
43-44	Specific Gravity of Sea Water		Code Unknown			
45	Remarks		Code Unknown			
46-80		Blank	Nor used.			