National Climatic Data Center

DATA DOCUMENTATION

FOR

DATASET 1170 (DSI-1170)

Surface Marine Data

September 16, 2003

National Climatic Data Center
151 Patton Ave.
Asheville, NC 28801-5001 USA

Table of Contents

1. **Abstract**: In the late 19th century, many maritime countries began the task of keying the vast array of ship logbooks which had accumulated over the years onto punch cards. Unfortunately, very little coordination among maritime countries existed during that time, resulting in each data set being keypunched in an entirely different format, and with different coding practices. In the 1940s and 1950s, the United States began acquiring these sets of historical ship observations. As each collection of punch cards was received, it was assigned a unique three digit number called a card deck or deck number. When these data were received by the United States and converted into a common format, random or systematic errors crept into the database. In the 1960s, it was decided to convert all these independent card decks into one common format (TD-1100). By the late 1960s, over fifteen independent card decks were at NCDC totaling over 30 million ship observations. Each card deck had certain unique characteristics and observing methods. In January 1981, a cooperative project was planned to create a consistent and easily used historical record of surface marine data for the period 1854-1979 (Woodruff, et al., 1987). Members of this project were the National Climatic Data Center (NCDC), Environmental Research Laboratories, the cooperative Institute for Research in Environmental Sciences, and the National Center for Atmospheric Research. The culmination of four years of work resulted in the Comprehensive Ocean-Atmosphere Data Set (COADS) (Slutz, et al., 1985, hereafter referred to as COADS Release 1). One of the many products of COADS was a unique set of surface marine ship reports in a modified TD-1129 format covering the period 1854-1979 (TD-1170). This document provides information only for COADS pre-1970s surface marine data. A similar COADS product covering the period 1970-1979 (TD-1129) is described in a Marine Data Users Reference, 1970-current (NCDC, 1986). Data Prior to 1854 is contained in the Maury collection. Errors and discrepancies exist in the marine data base because of varying quality of the input sources, changes in observing practices, coding practices, and data processing procedures throughout the history of data collection. Whenever possible, flags and indicators have been provided to signal or alleviate some of the problems. THESE FLAGS AND INDICATORS SHOULD BE CAREFULLY EXAMINED BEFORE ANY DATA ARE USED IN ANY TYPE OF STUDY. Global marine data observed during 1854-1979, primarily by ships-of- opportunity, have been collected, edited, and summarized statistically for each month of the period, using 2 degree latitude x 2 degree longitude boxes. Products now available in a first release from this Comprehensive Ocean- Atmosphere Data Set (COADS) include fully quality-controlled (trimmed) reports and summaries. Each of the 70 million unique reports contain 28 elements of weather, position, etc., as well as flags indicating which observations were statistically trimmed. The summaries give L4 statistics, such as the median and mean, for each of the eight observed variables of air and sea surface temperatures, wind, presssure, humidity, and cloudiness, plus LL derived variables. Relatively noisy (untrimmed) individual reports and summaries (giving L4 statistics for each of the eight observed variables) are available for investigators who prefer their own quality control. Two other report forms, inventories, and decade-month summaries are among the other products available. FORTRAN 77 software available to help read 'packed binary' data products and processing details, such as the method of indentifying duplicate reports, are also available. This product is a subset of the long marine reports, stored in ASCII character format. It is more fully described in supplement I of COADS Release 1. Related Data Sets: 1) COADS Long Marine Reports (@ NCAR) 2) COADS Compressed Marine Reports (@ NCAR) 3) COADS Monthly Summaries (@ NCAR) 4) COADS Decadal

:

Summaries (@ NCAR) Data Set Status: Data Collection is ongoing, updates are released periodically by NCAR and NCDC.

2. <u>Element Names and Definitions</u>:

<table>
<tr><th>Tape Positions</th><th>Element</th><th>Tape Configuration</th><th>Code Definition and Remarks</th></tr>
<tr><td>01-03</td><td>Card Deck Number</td><td>000-999</td><td>Number of the punched card deck from which the observation came.</td></tr>
<tr><td>04-06</td><td>10° Mardsen Square</td><td>001-936</td><td>Mardsen Square System</td></tr>
<tr><td>07-08</td><td>1° Mardsen Sub-Square</td><td>00-99</td><td>Mardsen Square System</td></tr>
<tr><td>09</td><td>Quadrant</td><td>1-4</td><td>1=N Latitude and W Longitude
2=N Latitude and E Longitude
3=S Latitude and W Longitude
4=S Latitude and E Longitude</td></tr>
<tr><td>10-12</td><td>Latitude</td><td>000-900</td><td>00.0° - 90.0° North or South</td></tr>
<tr><td>13-16</td><td>Longitude</td><td>0000-1800</td><td>000.0° - 180.0° East or West</td></tr>
<tr><td>17-20</td><td>Year</td><td>18xx-19xx</td><td>xx = Any Number</td></tr>
<tr><td>21-22</td><td>Month</td><td>01-12</td><td>01 = January 07 = July
02 = February 08 = August
03 = March 09 = September
04 = April 10 = October
05 = May 11 = November
06 = June 12 = December</td></tr>
<tr><td>23-24</td><td>Day</td><td>01-31</td><td>Day of the month</td></tr>
<tr><td>25-26</td><td>Hour – GMT</td><td>00-23</td><td>0000 GMT – 2300 GMT</td></tr>
<tr><td>27</td><td>Wind direction indicator</td><td>Δ,0,1,2</td><td>Δ = 36 point scale
0 = 32 point scale
1 = 16 of 36 point scale
2 = 16 of 32 point scale</td></tr>
<tr><td>28-29</td><td>Wind indicator</td><td>00-36, 99</td><td>Direction from which the wind is blowing.
<table>
<tr><th>36Pt</th><th>32Pt</th><th>16 of 36Pt</th><th>16 of 32Pt</th></tr>
<tr><td>00=Calm</td><td>Calm</td><td>Calm</td><td>Calm</td></tr>
<tr><td>01=005-014°</td><td>006-016°</td><td></td><td></td></tr>
<tr><td>02=015-024°</td><td>017-028°</td><td>012-033°</td><td>012-034</td></tr>
<tr><td>03=025-034°</td><td>029-039°</td><td></td><td></td></tr>
<tr><td>04=035-044°</td><td>040-050°</td><td></td><td>035-056°</td></tr>
<tr><td>05=045-054°</td><td>051-061°</td><td>034-056°</td><td></td></tr>
<tr><td>06=055-64°</td><td>062-073°</td><td></td><td>057-079°</td></tr>
<tr><td>07=065-074°</td><td>074-084°</td><td>057-078°</td><td></td></tr>
<tr><td>08=075-084°</td><td>085-095°</td><td></td><td>080-101°</td></tr>
<tr><td>09=085-094°</td><td>096-106°</td><td>079-101°</td><td></td></tr>
</table></td></tr>
</table>

:

			10=095-104° | 107-118° |	102-124°
			11=105-114° | 119-129° | 102-123° |
			12=115-124° | 130-140° |	125-136°
			13=125-134° | 141-151° |	
			14=135-144° | 152-163° | 124-146° | 147-169°
			15=145-154° | 164-174° |	
			16=155-164° | 175-185° | 147-168° | 170-191°
			17=165-174° | 186-196° |	
			18=175-184° | 197-208° | 169-191° | 192-214°
30	Wind speed indicator	Δ, 0	Δ = Not measured 0 = Measured
31-33	Wind speed	000-199	000 = Calm 001-199 = 1 to 199 Knots
34	Visibility Indicator	Δ, 0, 1	Δ = Not measured 0 = Measured 1= Fog present
35-36	Visibility	90-99	Horizontal visibility at the surface in kilometers. 90 = <0.05 91 = 0.05 92 = 0.2 Note: When visibility Indicator = 1, and visibility = 93, it means that fog was present and visibility was not reported. 93 = 0.5 94 = 1 95 = 2 96 = 4 97 = 10 98 = 20 99 = 50 or more
37-38	Present weather	00-99	00 = Cloud development not observed 01 = clouds generally dissolving or becoming less developed 02 = state of the sky unchanged 03 = Clouds generally forming or developing 04 = Visibility reduced by smoke 05 = Haze 06 = Widespread dust in suspension in the air, not raised by wind, at or

:
:

			near the station at the time of observation. 07 = Dust or sand raised by wind at or near the station at the time of observation, but no well developed dust whirls or sand whirls and no duststorm or sandstorm seen. 08 = Well developed dust whirls or sand whirls seen at or near the station during the preceeding hour or at the time of observation, but no duststorm or sandstorm. 09 = Duststorm or sandstorm within sight at the time of observation, or at the station during the preceding hour. 10 = Light fog (visibility 1,100 yards or more). Synonymous with European term “mist”. 11 = Patches of shallow fog or ice fog at the station, not deeper than about 10 meters. 12 = More or less contiuous shallow fog or ice fog at the station, not deeper than about 10 meters. 13 = Lightning visible, no thunder heard. 14 = Precipitation within sight, not reaching the surface of the sea. 15 = Precipitation within sight, reaching the surface of the sea, but more than 5 km. from the ship. 16 = Precipitation within sight, reaching the surface of the sea, near to, but not at the ship. 17 = Thunderstorm, but no precipitation at the time of observation. 18 = Squalls at or within sight of the ship during the preceding hour or at the time of observation. 19 = Funnel cloud or waterspout at or within sight of the ship during the preceding hour or at the time of observation. The following phenomena occurred at the ship during the preceding hour but not at the time of observation. 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. 25 = Shower(s) of rain 26 = Showers of snow or of rain and snow. 27 = Shower(s) of hail (ice pellets, type (b), snow pellets), or of rain and hail (ice pellets, type (b), snow pellets). 28 = Fog or ice fog. 29 = Thunderstorms (with or without precipitation) **Present weather codes 30-99 refer to phenomena occurring at the ship at time of observation.** 30 = Slight or moderate duststorm or sandstorm or sandstorm has decreased during the preceding hour. 31 = Slight or moderate duststorm or sandstorm, no appreciable change during the preceding hour. 32 = Slight or moderate duststorm or sandstorm has begun or 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 = Severe duststorm or sandstorm has begun or has increased during the preceding hour. 36 = Slight or moderate drifting snow generally low (below eye level) less than 6 feet. 37 = Heavy drifting snow (below eye level) less than 6 feet. 38 = Slight or moderate blowing snow generally high (above eye level) 6 feet or more. 39 = Heavy blowing snow generally high (above eye level) 6 feet or more. 40 = Fog or ice fog at a distance at the time of observation, but not at the ship during the preceding hour, the fog or ice fog extending to a level above that of the observer. 41 = Fog or ice fog in patches. 42 = Fog or ice fog, sky visible has become thinner during the preceding hour. 43 = Fog or ice fog, sky invisible has become thinner during the

			preceding hour. 44 = Fog or ice fog, sky visible no appreciable change during the preceding hour. 45 = Fog or ice fog, sky invisible no appreciable change during the preceding hour. 46 = Fog or ice fog, sky visible has begun or become thicker during the preceding hour. 47 = Fog or ice fog, sky invisible has begun or become thicker during the preceding hour. 48 = Fog, depositing rime, sky visible. 49 = Fog, depositing rime, sky invisible. 50 = Drizzle, not freezing, intermittent slight at time of observation. 51 = Drizzle, not freezing, continuous slight at time of observation. 52 = Drizzle, not freezing, intermittent moderate at time of observation. 53 = Drizzle, not freezing, continuous moderate at time of observation. 54 = Drizzle, not freezing, intermittent heavy (dense) at time of observation. 55 = Drizzle, not freezing, continuous heavy (dense) at time of observation. 56 = Drizzle, freezing, slight. 57 = Drizzle, freezing, moderate or heavy (dense). 58 = Drizzle and rain, slight. 59 = Drizzle and rain, moderate or heavy. 60 = Rain, not freezing, intermittent, slight at time of observation. 61 = Rain, not freezing, continuous, slight at time of observation. 62 = Rain, not freezing, intermittent, moderate at time of observation. 63 = Rain, not freezing, continuous, moderate at time of observation. 64 = Rain, not freezing, intermittent, heavy at time of observation. 65 = Rain, not freezing, continuous, heavy at time of observation. 66 = Rain, freezing, slight.

:

:

			67 = Rain, freezing, moderate or heavy. 68 = Rain or drizzle and snow, slight. 69 = Rain or drizzle and snow, moderate or heavy. 70 = Intermittent fall of snowflakes. 71 = Continuous fall of snowflakes slight at time of observation. 72 = Intermittent fall of snowflakes moderate at time of observation. 73 = Continuous fall of snowflakes moderate at time of observation. 74 = Intermittent fall of snowflakes heavy at time of observation. 75 = Continuous fall of snowflakes heavy at time of observation. 76 = Ice prisms (with or without fog). 77 = Snow grains (with or without fog). 78 = Isolated star like snow crystals (with or without fog). 79 = Ice pellets, type (a) (sleet, US definition) 80 = Rain shower(s), slight. 81 = Rain shower(s) moderate or heavy. 82 = Rain shower(s), violent. 83 = Shower(s) of rain and snow mixed, slight. 84 = Shower(s) or rain and snow mixed, moderate or heavy. 85 = Snow shower(s), slight. 86 = Snow shower(s), moderate or heavy. 87 = Slight showers of snow pellets or ice pellets, type (b), with or without rain or rain and snow mixed. 88 = Moderate or heavy showers of snow pellets or ice pellets (b), with or without rain or rain and snow mixed. 89 = Slight showers of hail with of without rain or rain and snow mixed, not associated with thunder. 90 = Moderate of heavy showers of hail, with or without rain or rain and snow, slight mixed, not associated with thunder. 91 = Slight rain at time of observation, thunderstorm during preceding hour but not at observation. 92 = Moderate of heavy rain at time of observation, thunderstorm during preceding hour but not at

:
:

			observation. 93 = Slight snow, or rain and snow mixed or hail, at time of observation with thunderstorm during the preceding hour but not at time of observation. 94 = Moderate or heavy snow, or rain and snow mixed, or hail, at time of observation with thunderstorm during the preceding hour but not at time of observation. 95 = Thunderstorm, slight or moderate, without hail, but with rain and/or snow at time of observation. 96 = Thunderstorm, slight or moderate, with hail at time of observation. 97 = Thunderstorm, heavy, without hail but with rain and/or snow at time of observation. 98 = Thunderstorm combined with duststorm or sandstorm at time of observation. 99 = Thunderstorm, heavy, with hail at time of observation.
39	Past weather (The period covered by Past Weather is 6 hours for observations at 0000, 0600, 1200 and 1800 GMT and 3 hours for observations at 0300, 0900, 1500 and 2100 GMT).	0-9	0 = Cloud covering ½ or less of the sky throughout the appropriate period. 1 = Cloud covering more than ½ of the sky during part of the appropriate period and covering ½ or less during part of the period. 2 = Cloud covering more than ½ of the sky throughout the appropriate period. 3 = Sandstorm, duststorm or blowing snow. 4 = Fog or ice fog or thick haze (US includes thick smoke). 5 = Drizzle 6 = Rain 7 = Snow, or rain and snow mixed. 8 = Shower 9 = thunderstorm with or without precipitation.
40-44	Sea level pressure	08900-10700	890.0-1070.0 millibars
45	Temps indicator	1,3,5	1 = tenths of degrees Celsius 3 = whole degrees Celsius 5 = half degrees Celsius
46-49 50-53 54-57 58-61	Air temperature Wet Bulb temp Dew Point Sea Surface	±000-±999	±00.0-±99.9°C (always recorded to tenths). The first position in the field is the sign. Dew-point temperature is generally reported in whole degrees. A zero is recorded in the tenths position when dew-points

:
:

			are reported in whole degrees.
62	Total cloud amt. (N)	0-9	**Fraction of celestial dome covered by all clouds.** 0 = Clear 1 = 1 Okta or less, but not zero. 2-8 = 2-8 Oktas 9 = Sky obscured or cloud amount cannot be estimated.
63	Lower cloud amt. (Nh)	0-9	Fraction of celestial dome covered by all the Cl clouds and, if no Cl cloud is present, that fraction covered by all the Cm clouds present. See codes for Total Cloud Amt. (N).
64	Low cloud type (Cl)	0-9, -	0 = No Stratocumulus, Stratus, Cumulus or Cumulonimbus. 1 = Cumulus with little vertical extent and seemingly flattened, or ragged Cumulus other than of bad weather, or both. 2 = Cumulus of moderate or strong vertical extent, generally with protuberances in the form of domes or towers, either accompanied or not by other Cumulus or by Stratocumulus, all having their base at the same level. 3 = Cumulonimbus, the summits of which, at least partially, lack sharp outlines but are neither clearly fibrous (cirriform) nor in the form of an anvil; Cumulus, stratocumulus or Stratus may also be present. 4 = Stratocumulus formed by the spreading out of Cumulus; Cumulus may also be present. 5 = Stratocumulus not resulting form the spreading out of Cumulus. 6 = Stratus in a more or less continuous sheet or layer, or in ragged shreds, or both, but no Stratus fractus of bad weather. 7 = Stratus fractus of bad weather (generally existing during precipitation and a short time before and after) or Cumulus fractus of bad weather, or both (pannus), usually below Altostratus or Nimbostratus. 8 = Cumulus and Stratocumulus other than that formed from the spreading out of Cumulus; the base of the Cumulus is at a different level from that of the Stratocumulus. 9 = Cumulonimbus, the upper part of which is clearly fibrous (cirroform), often in the form of an anvil; either

<table>
<tr><td></td><td></td><td></td><td>accompanied or not by Cumulonimbus without anvil or fibrous upper part by Cumulus, Stratocumulus, Stratus or pannus.
- = Stratocumulus, Stratus, Cumulus and Cumulonimbus invisible owing to darkness, fog, blowing dist or sand, or other similar phenomena.</td></tr>
<tr><td>65</td><td>Cloud height indicator</td><td>b, 0</td><td>b = Height not measure (blank)
0 = Height measured</td></tr>
<tr><td>66</td><td>Cloud height (h)</td><td>0-9, -, /</td><td>Height above sea surface of the base of the lowest cloud or fragment thereof.

<table><tr><td>Approximate Height in Feet</td><td>Height in Meters</td></tr><tr><td>0 = 0-149</td><td>0-49</td></tr><tr><td>1 = 150-299</td><td>50-99</td></tr><tr><td>2 = 300-599</td><td>100-199</td></tr><tr><td>3 = 600-999</td><td>200-299</td></tr><tr><td>4 = 1000-1999</td><td>300-599</td></tr><tr><td>5 = 2000-3499</td><td>600-999</td></tr><tr><td>6 = 3500-4999</td><td>1000-1499</td></tr><tr><td>7 = 5000-6499</td><td>1500-1999</td></tr><tr><td>8 = 6500-7999</td><td>2000-2499</td></tr><tr><td>9 = >8000 or no clouds</td><td>>2500 or no clouds</td></tr><tr><td>- = unknown</td><td></td></tr><tr><td>/ = Height of base of cloud not known or base of clouds at a level higher than that of the station.</td><td></td></tr></table></td></tr>
<tr><td>67</td><td>Mid cloud type (Cm)</td><td>0-9, -</td><td>0 = No Altocumulus, Altostratus or Nimbostratus.
1 = Altostratus, the greater part of which is semi-transparent; though this part of the sun or moon may be weakly visible, as through ground glass.
2 = Altostratus, the greater part of which is sufficiently dense to hide the son or moon, or nimbostratus.
3 = Altocumulus, the greater part of which is semi-transparent; the various elements of the cloud change only slowly and are all at a single level.
4 = Patched (often in the form of almonds or fished) of Altocumulus, the greater part of which is semi-</td></tr>
</table>

:

:

			transparent; the clouds occur at one or more levels and the element are continually changing in appearance. 5 = Semi-transparent Altocumulus in bands, or Altocumulus in one or more fairly continuous layers (semi-transparent or opaque), progressively invading sky, these Altocumulus clouds generally thicken as a whole. 6 = Altocumulus resulting from the spreading out of Cumulus (or Cumulonimbus). 7 = Altocumulus in two or more layers, usually opaque in places, and not progressively invading the sky; or opaque layer of Altocumulus, not progressively invading the sky; or Altocumulus together with Altostratus or Nimbostratus. 8 = Altocumulus with sproutings in the form of small towers or battlements; or Altocumulus having the appearance of cumuliform tufts. 9 = Altocumulus of a chaotic 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.
68	High cloud type (Ch)	0-9,-	0 = No Cirrus, Cirrocumulus or Cirrostratus. 1 = Cirrus in the form of filaments, strands or hooks, not progressively invading the sky. 2 = 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 having the appearance of cumuliform tufts. 3 = Dense Cirrus, often in the form of an anvil, being the remains of the upper parts of Cumulonimbus. 4 = Cirrus in the form of hooks or of filaments, or both, progressively invading the sky; they generally become denser as a whole. 5 = Cirrus (often in bands converging towards one point or two opposite points of the horizon) and Cirrostratus, or Cirrostratus alone; in either case, they are

:

:

<table>
<tr><td></td><td></td><td></td><td>progressively invading the sky, and generally growing denser as a whole; the continuous veil extends more than 45 degrees above the horizon, without the sky being totally covered.
7 = Veil of Cirrostratus covering the celestial dome.
8 = Cirrostratus not progressively invading the sky and not completely covering the celestial dome.
9 = Cirrocumulus alone, or Cirrocumulus accompanied by cirrus or both, but Cirrocumulus is predominate. Cirrostratus, 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.
- = Cirrus, Cirrocumulus and Cirrostratus.</td></tr>
<tr><td>69-70</td><td>Direction of waves</td><td>00-36, 49, 99</td><td>Direction from which waves come, in tens of degrees.

<table><tr><td>00 = Calm</td><td>19 = 185-194°</td></tr><tr><td>01 = 005-014°</td><td>20 = 195-204°</td></tr><tr><td>02 = 015-024°</td><td>21 = 205-214°</td></tr><tr><td>03 = 025-034°</td><td>22 = 215-224°</td></tr><tr><td>04 = 035-044°</td><td>23 = 225-234°</td></tr><tr><td>05 = 045-054°</td><td>24 = 235-244°</td></tr><tr><td>06 = 055-064°</td><td>25 = 245-254°</td></tr><tr><td>07 = 065-074°</td><td>26 = 255-264°</td></tr><tr><td>08 = 075-084°</td><td>27 = 265-274°</td></tr><tr><td>09 = 085-094°</td><td>28 = 275-284°</td></tr><tr><td>10 = 095-104°</td><td>29 = 285-294°</td></tr><tr><td>11 = 105-114°</td><td>30 = 295-304°</td></tr><tr><td>12 = 115-124°</td><td>31 = 305-314°</td></tr><tr><td>13 = 125-134°</td><td>32 = 315-324°</td></tr><tr><td>14 = 135-144°</td><td>33 = 325-334°</td></tr><tr><td>15 = 145-154°</td><td>34 = 335-344°</td></tr><tr><td>16 = 155-164°</td><td>35 = 345-354°</td></tr><tr><td>17 = 165-174°</td><td>36 = 355-004°</td></tr><tr><td>18 = 175-184°</td><td></td></tr></table>
49 = Waves confused, direction indeterminate (waves equal to or less than 4 ¾ meters).

99 = Waves confused, direction indeterminate (waves greater than 4 ¾ meters).

For buoy data this field is average wave direction.</td></tr>
<tr><td>71</td><td>Period of</td><td>0-9, -</td><td>2 = 5 seconds or less</td></tr>
</table>

	waves		3 = 6-7 seconds 4 = 8-9 seconds 5 = 10-11 seconds 6 = 12-13 seconds 7 = 14-15 seconds 8 = 16-17 seconds 9 = 18-19 seconds 0 = 20-21 seconds 1 = over 21 seconds - = calm or period not determined For buoy data this field is average wave period.
72-73	Height of waves	00-99	**Height in ½ meter increments** 00 = < ¼ meter 01-99 = ½ - 49 ½ meters For Buoy data this field is significant wave height.
74-75	Direction of swell	00-36, 49, 99	Same as Direction of waves
76	Period of swell	0-9, -	Same as Period of Waves prior to 1969. Beginning January 1, 1968, the code for Period of swell is: 0 = 10 seconds 1 = 11 seconds 2 = 12 seconds 3 = 13 seconds 4 = 14 seconds 5 = 5 seconds or less 6 = 6 seconds 7 = 7 seconds 8 = 8 seconds 9 = 9 seconds - = calm or period not determined
77-78	Height of swell	00-99	Same as Height of waves
79-124	Supplemental Data		Variable. See individual source decks for details.
125-138	Quality Control Flags	A, B, J, K, L, M, N, Q, R, S	See table 3 in Section 3 for explanation of flags. 125 = Ship position 126 = Wind 127 = Visibility 128 = Present weather 129 = Past weather 130 = Pressure 131 = Dry bulb 132 = Wet bulb 133 = Dew point 134 = Sea temperature 135 = Clouds 136 = Waves

<table>
<tr><td></td><td></td><td></td><td>137 = Swell waves
138 = Amount of pressure tendency (ppp)</td></tr>
<tr><td>139-140

Note:</td><td>Quality count

The quality code is incremented by 3</td><td>00-39

instead of 6 if both wet bulb and dew point are missing.</td><td>This value is the summation of the numerical value of each of the 14 QC flags in positions 125-138. (00 = Best report and 39 = worst report). If wet bulb and dew point are both flagged, the Quality count is increased by the one element with the highest flag value. (The max increase in Quality count for these two elements is 3.)

<table><tr><td>Flag</td><td>Quality Count</td></tr><tr><td>R</td><td>0</td></tr><tr><td>A, B</td><td>1</td></tr><tr><td>J, K, L</td><td>2</td></tr><tr><td>M, N, Q, S</td><td>3</td></tr></table></td></tr>
<tr><td>141</td><td>Additional data indicator</td><td>b, 1, 6, 8</td><td>b = No additional data
1 = Ice information follows
6 = Ship direction and speed and 3 hour pressure change follows
8 = Significant cloud information follows (for all decks other than 898, 900 and 926)
8 = For decks 898, 900 and 926, see supplemental data field descriptions in Section 6.</td></tr>
<tr><td>WHEN</td><td>ADDITIONAL</td><td>DATA</td><td>INDICATOR = 1</td></tr>
<tr><td>142</td><td>Type of ice</td><td>1-5</td><td>1 = Icing from ocean spray
2 = Icing from fog
3 = Icing from spray and fog
4 = Icing from rain
5 = Icing from spray and rain</td></tr>
<tr><td>143-144</td><td>Ice thickness</td><td>00-99</td><td>Ice thickness in centimeters</td></tr>
<tr><td>145</td><td>Rate of ice accretion</td><td>0-4</td><td>0 = Ice not building up
1 = Ice building up slowly
2 = Ice building up rapidly
3 = Ice melting or breaking up slowly
4 = Ice melting or breaking up rapidly</td></tr>
<tr><td>146-147</td><td>Blank</td><td></td><td>b = blank field</td></tr>
<tr><td>WHEN</td><td>ADDITIONAL</td><td>DATA</td><td>INDICATOR = 6</td></tr>
<tr><td>142</td><td>Ship direction</td><td>0 -9</td><td>Ship’s course (true) made good during the 3 hours preceding the time of observation.

0 = Ship hove to 5 = SW
1 = NE 6 = W
2 = E 7 = NW
3 = SE 8 = N
4 = S 9 = Unknown</td></tr>
<tr><td>143</td><td>Ship speed</td><td>0-9</td><td>Ship’s average speed made good during the 3 hours preceding the time of</td></tr>
</table>

:
:

			observation. **Prior to 1968:** 0 = 0 Knots 5 = 21-25 Knots 1 = 1-3 Knots 6 = 16-18 Knots 2 = 4-6 Knots 7 = 31-35 Knots 3 = 7-9 Knots 8 = 22-24 Knots 4 = 16-20 Knots 9 = >24 Knots **Beginning January 1, 1968:** 0 = 0 Knots 5 = 21-25 Knots 1 = 1-5 Knots 6 = 26-30 Knots 2 = 6-10 Knots 7 = 31-35 Knots 3 = 11-15 Knots 8 = 36-40 Knots 4 = 16-20 Knots 9 = >40 Knots
144	Barometric tendency	0-8	0 = Increasing, then decreasing; atmospheric pressure same or higher than 3 hours ago. 1 = Increasing, then steady; or increasing then increasing more slowly; atmospheric pressure now higher than 3 hours ago. 2 = Increasing (steadily or unsteadily) atmospheric pressure now higher than 3 hours ago. 3 = Decreasing or steady, then increasing; or increasing then increasing more rapidly; atmospheric pressure now higher than 3 hours ago. 4 = Steady; atmospheric pressure same as 3 hours ago. 5 = Decreasing, then increasing; atmospheric pressure the same or lower than 3 hours ago. 6 = Decreasing, then steady, or decreasing then decreasing more slowly; atmospheric pressure now lower than 3 hours ago. 7 = Decreasing (steadily or unsteadily) atmospheric pressure now lower than 3 hours ago. 8 = Steady or increasing, then decreasing; or decreasing then decreasing more rapidly; atmospheric pressure now lower than 3 hours ago.
145-147	Amount of pressure change	000-299	Amount of pressure change form 3 hours ago. (Tenths to millibars)

			00.0 - 29.9 millibars
WHEN	**ADDITIONAL**	**DATA**	**INDICATOR = 8**
142	Significant cloud amount	0-9	**Amount of individual cloud layer or mass.** 0 = Clear 1 = 1 Okta or less, but not zero 2-8 = 2-8 Oktas 9 = Sky obscured or cloud amount cannot be estimated
143	Significant cloud type	0-9, -	**Cloud genus** 0 = Cirrus 1 = Cirrocumulus 2 = Cirrostratus 3 = Altocumulus 4 = Altostratus 5 = Nimbostratus 6 = Stratocumulus 7 = Stratus 8 = Cumulus 9 = Cumulonimbus - = Cloud not visible owing to darkness, fog, duststorms, sandstorm, or other analogous phenomena.
144-145	Significant cloud height	00-50 56-99	**Height of the base of the cloud layer or mass whose genus was reported in Field 045.** 00 = <30 meters 01-50 = 30-1,500 meters in increments of 30 meters 56-80 = 1,800-9,000 meters in increments of 300 meters 81-88 = 10,500-21,000 meters in increments of 1,500 meters 89 = > 21,000 meters 90 = < 50 meters 91 = 50-100 meters 92 = 100-200 meters 93 = 200-300 meters 94 = 300-600 meters 95 = 600-1,000 meters 96 = 1,000-1,500 meters 97 = 1,500-2,000 meters 98 = 2,000-2,500 meters 99 = >2,500 meters or no clouds
146-147	Blank		
148	Source identifier	A-Q	Dataset from which report was selected. A = Atlas B = HSST Pacific C = HSST Indian D = HSST Atlantic E = Old TDF-11 Supplemental B F = Old TDF-11 Supplemental C G = Monterey Telecommunications

			H = OSV (Ocean Station Vessels) I = OSV Supplement J = MSQ 486 and 105 Omissions K = NODC Surface L = NODC Surface Supplement M = Eltanin Omissions N = Japanese O = South African Whaling P = Australian Q = IMMPC

3. **Start Date**: 18540101

4. **Stop Date**: 19791231

5. **Coverage**:

   a. Southernmost Latitude: -90.0S
   b. Northernmost Latitude: 90.0N
   c. Westernmost Longitude: -180.0W
   d. Easternmost Longitude: 180.0E

6. **How to Order Data**:

   Ask NCDC's Climate Services about the cost of obtaining this data set.
   Phone: 828-271-4800
   FAX: 828-271-4876
   E-mail: **NCDC.Orders@noaa.gov**

7. **Archiving Data Center**:

   Archive Branch
   National Climatic Data Center
   151 Patton Avenue
   Asheville, NC 28801

8. **Technical Contact**:

   National Climatic Data Center
   151 Patton Avenue
   Asheville, NC 28801

9. **Known Uncorrected Problems**: None.

10. **Quality Statement**:

11. **Essential Companion Datasets**:

12. **References**: National Climatic Data Center, 1968: TDF-11 reference Manual. NCDC, Asheville NC

    National Climatic Data Center, 1986: Marine Data Users Reference, 1970-Current. NCDC, Asheville NC

Slutz, R.J., S.J. Lubker, J.D. Hiscox, S.D. Woodruff, R.L. Jenne, D.H. Joseph, P.M. Steurer, and J.D. Elms, 1985: Comprehensive Ocean-Atmosphere Data Set; Release 1. NOAA Environmental Research Laboritories, Climate Research Program, Boulder CO. 268 pp (NTS PB86-105723)

Woodruff, S.D., R.J. Slutz, R.L. Jenne, P.M. Steurer, 1987: A comprehensive Ocean-Atmosphere Data Set. Bull Amer. Meteor. Soc., 68, 1239-1250.

Appendix

Supplemental Data Format for Unique Deck Numbers (Tape Positions 79-124)

As stated above, all decks created during the conversion to TD-1100 in the 1960's contain a supplemental data section. This section contained fields which could not be converted directly into the common format. Also, the supplemental section was used for the original codes of specific weather elements. For example, deck 192 has the original Beaufort wind speed codes placed in the supplemental data field while an average of the corresponding wind speed in knots was placed in the common format section.

The supplemental data fields for each deck number are described in the following pages by the tape position and element name. A description and explanation of the codes for each element are not given, but can be found in the TD-1100 reference manual (NCDC, 1968). It is anticipated that most users of marine data will locate the required information in the common format section and not have need for the supplemental data fields.

DECK #110

Common Name: U.S. Navy Marine Surface Observations

Period of Record: 1945-1951

Things of Interest: Usually observation were 24 per day, but some vary to as few as 8 per day. Observations were recorded on a WBAN 11 form.

Supplemental Data Fields for Deck #110

Tape Position	Element
79-80	Relative humidity (hundredths digit omitted)
81-82	Ceiling height
83-86	Sky condition
87-89	Visibility
90-99	Present weather
100-101	Air temperature
102-103	Wind direction
104	Amount of low cloud
105	Type of low cloud
106-107	Height of low cloud
108	Amount of middle cloud
109	Type of middle cloud

:
:

110	Type of high cloud
111-112	Height of high cloud
113	Total cloud amount
114-115	Wet bulb temperature
116-117	Sea temperature
118	State of the sea
119	Direction of the sea
120-124	Do not use

DECK #116

Common Name: U.S. Marine Surface Observations 1949-6/63

Period of Record: 1949-6/63 except: 1945-6/63 for OSV, March 1960-1961 for Great Lake Ships.

Things of Interest: Observations by World-wide Merchant and Navy Ships and OSV's. Observations every 6 hours by Merchant and some Navy ships and every 3 hours for OSV's

Supplemental Data Fields for Deck #116

Tape Position	Element
79-80	OSV number
81	Card indicator
82	OSV or Ship indicator
83	Ice indicator
84-87	Ship number
88-90	Relative humidity
91-92	Total cloud amount
93-94	Height of low cloud
95-96	Amount of lower cloud
97-98	Significant cloud amount (tenths)
99	Significant cloud amount (eights)
100	Type of significant cloud
101-102	Height of significant cloud
103-107	Ice report
108	Barometer comparison station or data source
109-110	Wind direction
111-112	Visibility
113-114	Present weather
115-124	Blank

DECK #117

Common Name: U.S. Navy Hourly Marine Observations

Period of Record: 1952-1964

Things of Interest: Extension of Deck #110. Observations were recorded on a WBAN 11A and 11B form. Fixed weather ship (OSV) three-hourly surface observations were initiated in this deck

in January 1952 and continued through June 1963.

Supplemental Data Fields for Deck #117

Tape Position	Element
79-80	OSV number
81	Card indicator
82	OSV or ship indicator
83	Ice indicator
84-87	Ship number
88-124	Do not use

DECK #118

Common Name: Japanese Marine Surface Observations

Period of Record: 1930-1953

Things of Interest: Area covers wherever Japanese ships operated except: OSV's, Whaling Ships and Antarctic ship "Soya". Observations are 6 hourly. Data after 1953 continues in Deck #119.

Supplemental Data Fields for Deck #117

Tape Position	Element
79-80	OSV number
81	Card indicator
82	OSV or ship indicator
83	Ice indicator
84-87	Ship number (Field 38 in TD-1100)
88	Ship class
89-93	Ship number (Field 44 in TD-1100)
94	Sky condition
95	Type of precipitation
96	Other phenomena
97	Obstructions to vision
98	Kind of ice
99-100	Direction of current
101-102	Speed of current
103	Optical phenomena
104	Sea water phenomena or lithometeors
105	Disastrous phenomena
106	Sea quake
107-108	Direction of sea waves
109	Height of sea waves
110-111	Direction of swell
112	Height of swell
113-124	Blank

DECK #119

Common Name: Japanese Marine Surface Observations

Period of Record: 1934-1969 (continuous through 1971 in TD-1129)

Things of Interest: Data extracted by Japanese Meteorological Agency from Japanese Ships' Logs. Observations vary from 3 hourly to 6 hourly.

Supplemental Data Fields for Deck #119

Tape Position	Element
79-80	OSV Number
81	Card indicator
82	OSV or ship indicator
83	Ice indicator
84-87	Ship Number (Field 38 in TD-1100)
88-92	Ship Number (Field 39 in TD-1100)
93	Format Number
94	Ship Class
95-96	Air-Sea Temperature Difference
97-98	Direction of Waves Second
99	Period of Waves Wave
100-101	Height of Waves Group
102-103	Direction of Waves First
104	Period of Waves Wave
105-106	Height of Waves Group
107-124	Blank

DECK #128

Common Name: International Marine Surface Synoptic Observations.

Period of Record: July 1963-1969 (continues through 1978 in TD-1129). Some prior records to 1900.

Things of Interest: A major deck covering world-wide marine areas from many source countries. This deck was used as the basic input format to Tape Deck Family – 11. Observations are 3 or 6 hourly. OSV reports are included.

Supplemental Data Fields for Deck #128

Tape Position	Element
79-80	OSV number
81	Card indicator
82	OSV or ship indicator
83	Ice indicator
84-87	Ship number
88-90	Relative humidity
91	Ice on Wet Bulb indicator
92	Original temperature indicator
93	Sea temperature indicator (begin 1968)
94-95	Wave period (begin 1968)
96-124	Blank

DECK #150-156

Common Name: Historical Sea Surface Temperature (HSST) Data Project

Period of Record: 150 Pacific (U.S. responsibility) HSST Netherlands Receipts 1939-1961
151 Pacific (U.S. responsibility) HSST German Receipts 1862-1960
152 Pacific (U.S. responsibility) HSST U.K. Receipts 1854-1961
155 Indian (Netherlands responsibility) HSST 1861-1960
156 Atlantic (German responsibility) HSST 1854-1961

Things of Interest: This project was sponsored by the WMO to gather data for the Pacific, Atlantic and Indian Oceans. Differences have been found between HSST data and previous duplicates in the TD-11 data base.

Supplemental Data Field for Deck #150-156

Tape Position	Element
79-81	Relative humidity
82	Cloud amounts in 10th before 1900 in CD 152
83-109	Blank
110-112	360 degree wind direction
113-115	Wind speed in meters/sec
116-120	HSST data edit codes (F Codes)
121-124	Blank

DECK #184

Common Name: British Marine Observations

Period of Record: 4/1953 - 12/1961

Things of Interest: Deck #184 is an extension of Deck #194. The observations were taken aboard voluntary ships using the 1949 code.

Supplemental Data Field for Deck #184

Tape Position	Element
79-80	OSV number
81	Card indicator
82	OSV or ship indicator
83	Ice indicator
84-87	Ship number
88-90	Relative humidity
91	Country of origin
92-94	Beaufort weather
95-96	Series number
97-101	Log book number
102	5 degree sub-square
103-106	Waves
107-124	Blank

DECK #185

Common Name: USSR Marine Surface Synoptic IGY

Period of Record: 7/1/57 – 12/31/58

Things of Interest: Data is for Russian Synoptic Observations in area north of latitude 50°N. Observations were taken every 6 hours daily.

Supplemental Data Field for Deck #185

Tape Position	Element
79-80	OSV number
81	Card indicator
82	OSV or ship indicator
83	Ice indicator
84-87	Ship number
88-90	Blank
91-92	Wind speed
93-94	Air-Sea temperature difference
95-96	Direction of waves
97	Height of waves
98-124	Blank

DECK #186

Common Name: USSR Ice Station Synoptic Observation

Period of Record: 1950-1969 (except N. Pole Station #1: 1937-1938) (continues through 1970 in TD-1129)

Things of Interest: Area involves seven Russian Ice Islands adrift in the Artic Ocean. Observations are 6 hourly for the most part.

Supplemental Data Field for Deck #185

Tape Position	Element
79-80	OSV number
81	Card indicator
82	OSV or ship number
83	Ice indicator
84-87	Ship number
88-124	Blank

DECK #187

Common Name: Japanese Whaling Ship Surface Observations

Period of Record: 1946-1956 (whaling seasons: Months of November-March only)

Things of Interest: Data are 3 or 6 hourly synoptic observations in the southern hemisphere of the South Pacific and Indian Ocean areas.

Supplemental Data Field for Deck #185

Tape Position	Element
79-80	OSV number
81	Card indicator
82	OSV or ship number
83	Ice indicator
84-87	Ship number (Field 38 in TD-1100)
88-89	Ship number (Field 39 in TD-1100)
90-91	Whaling season
92	Octant
93-95	Latitude
96-98	Longitude
99-101	Pressure
102-103	Air temperature
104-105	Sea temperature
106-107	Dew point temperature
108-109	Wind direction
110	Beaufort wind force
111-112	Meridional zone
113	Latitude zone
114-124	Blank

DECK #188

Common Name: Norwegian Antarctic Whaling Factory Ships

Period of Record: 1932-1939 (whaling seasons: Months of September-May only)

Things of Interest: Observations taken by eleven Norwegian whaling ships in area south of Africa and were usually taken 8 times daily. Over 50% of this deck was found to be duplicated with observations in Deck #192 and eliminated.

Supplemental Data Field for Deck #185

Tape Position	Element
79-80	OSV number
81	Card indicator
82	OSV or ship indicator
83	Ice indicator
84-87	Ship number (Field 38 in TD-1100)
88-90 (blank)	Relative humidity
91	Ship number (Field 40 in TD-1100)
92-124	Blank

DECK #189

Common Name: Dutch Marine Observations

Period of Record: 1/1939- 12/1939 and 9/1945 – 1959. Some prior records.

Things of Interest: Deck #189 is an extension of Deck #193. The missing period of 1/1940 – 8/1945 is due to German occupation of the Netherlands during WWII. This deck includes observations for specific humidity in 1/10 gm/kg., and duration of fog and precipitation in time units of a quarter of an hour per 6 hours synoptic period.

Supplemental Data Field for Deck #185

Tape Position	Element
79-80	OSV number
81	Card indicator
82	OSV or ship indicator
83	Ice indicator
84-87	Ship indicator
88-90	Relative humidity
91-93	Specific humidity
94-95	Duration of fog
96-97	Duration of precipitation
98	Beaufort wind force
99-100	Special phenomena
101-102	2 degree sub-square
103	5 degree sub-square
104-107	Journal number
108-109	Code number
110	Country or watch number
111-124	Blank

DECK #192

Common Name: Deutsche Seewarte Marine Observations

Period of Record: 1855-1939

Things of Interest: This is a major historical deck. Card deck #192 was punched by the German Meteorological Service during the Nazi regime and was punched by the allies during the course of WWII. Most of the observations were made at 6 hour intervals.

Supplemental Data Field for Deck #185

Tape Position	Element
79-80	Log book type
81-86	Code sheet number
87-88	Beaufort wind force
89-90	Present weather
91-93	Sea level pressure
94	Visibility
95	Low cloud type

:
:

96	Middle cloud type
97	High cloud type
98	Total cloud amount
99	Low cloud amount
100-101	Direction of sea
102	State of the sea
103-104	Direction of swell
105	Barometric tendency
107-108	Amount of pressure change
109-110	Relative humidity (not accurate)
111-112	Precipitation from lightship
113-121	Beaufort weather and remarks
122-124	Do not use

DECK #193

Common Name: Dutch Marine Observations

Period of Record: 1854-1938

Things of Interest: This is a major historical deck. Data was prepared at Netherlands Meteorological Institute at DeBilt. This deck includes current (set and drift) which is somewhat unusual.

Supplemental Data Field for Deck #185

Tape Position	**Element**
79-80	OSV number
81	Card indicator
82	OSV of ship indicator
83	Ice indicator
84-87	Ship number
88-89	Current (set)
90-91	Current (drift)
92	Watch
93-94	Beaufort wind force
95-97	Pressure
98	Visibility
99	Cloud type (high)
100-101	Cloud direction
102	Total cloud amount
103	State of the sea
104-105	Direction of swell
106	Amount of swell
107-108	Duration of fog
109-110	Duration of precipitation
111-124	Blank

DECK #194

Common Name: British Marine Observations

Period of Record: 1856-1955

Things of Interest: This is a major historical deck. The cards were punched from logbooks of several maritime units of the United Kingdom.

Supplemental Data Field for Deck #185

Tape Position	Element
79-80	OSV number
81	Card indicator
82	OSV or ship indicator
83	Ice indicator
84-87	Ship indicator
88-90	Relative humidity
91	Series
92-96	Log book number
97	Watch
98-99	Beaufort wind force
100-101	Direction of sea
102	State of sea
103-104	Direction of swell
105	Amount of swell
106	Weather A
107-109	Weather B
110-113	Series code
114	Visibility
115-124	Blank

DECK #195

Common Name: U.S. Navy Ship Log Marine Observations

Period of Record: 1941-1946

Things of Interest: Usually, only those observations made at 08, 12 and 20 hours, local standard time, were keypunched since these were the only observations which had ship positions.

Supplemental Data Field for Deck #185

Tape Position	Element
79-80	OSV number
81	Card indicator
82	OSV or ship number
83	ice indicator
84-87	Ship number (Field 38 in TD-1100)
88-90	Relative humidity
91-95	Ship number (Field 40 in TD-1100)
96-97	Present weather
98-100	Cloud type
101-102	Sea/swell direction
103	Sea/swell combined
104-105	Direction of swell
106	Type of swell
107	Port Indicator

:
:

108-124	Blank

DECK #195

Common Name: U.S. Navy Ship Log Marine Observations

Period of Record: 1941-1946

Things of Interest: Usually, only those observations made at 08, 12 and 20 hours, local standard time, were keypunched since these were the only observations which had ship positions.

Supplemental Data Field for Deck #185

Tape Position	Element
79-80	OSV number
81	Card indicator
82	OSV or ship indicator
83	Ice indicator
84-87	Ship number (Field 38 in TD-1100)
88-90	Relative humidity
91-95	Ship number (Field 40 in TD-1100)
96-97	Present weather
98-100	Cloud type
101-102	Sea/swell direction
103	Sea/swell combined
104-105	Direction of swell
106	Type of swell
107	Port of swell
108-124	Blank

DECK #196

Common Name: Deutsche Seewarte Marine Observations

Period of Record: 1/1949 - 1954

Things of Interest: Deck #196 is an extension of Deck #192 for Mardsen Squares #217-221, 249-252, 284-287. Data were punched by the German Meteorological Service after WWII. Usually, observations were taken every 3 hours.

Supplemental Data Field for Deck #185

Tape Position	Element
79-80	OSV number
81	Card indicator
82	OSV or ship indicator
83	Ice indicator
84-87	Ship number (Field 38 in TD-1100)
88-90	Relative humidity
91	Month
92-93	Ship class

:
:

94-99	Code sheet number
100-101	Hour
102-104	Ship number (Field 44 in TD-1100)
105	Wind direction
106-107	Direction of sea
108	State of sea
109-110	Direction of swell
111	Type of swell
112-114	Amount of precipitation
115-117	Significant weather
118	Storm duration
119	Fog duration
120	Beaufort wind force
121-124	Blank

DECK #197

Common Name: Marine Surface Observations from Arctic and Antarctic Sources in the Atlantic Ocean Region (Danish Marine).

Period of Record: Danish – scattered periods 1871-1956
Scottish – 1902-1904
French – 1908-1910
Russian – 1912-1913 and 1913-1914
British – 11/16/1925 – 8/29/1927; 8/25/1926 – 2/24/1938; 1/18/1950 – 10/14/1950

Things of Interest: Data are from several sources. Except for Danish records, observations are from specific research expeditions. Danish records are from Danish deck logs of selected and supplementary ships.

Supplemental Data Field for Deck #185

Tape Position	**Element**
79-80	OSV number
81	Card indicator
82	OSV or ship number
83	ice indicator
84-87	Ship indicator
88-90	Relative humidity
91-94	Deck log number
95-96	Beaufort wind force
97	Total cloud amount
98-99	Present weather
100	Visibility
101-102	Direction of sea
103	State of the sea
104-105	Height of sea
106	Character of swell
107	Direction of swell
108-110	Dry bulb temperature
111-112	Sea temperature
113-116	Wet bulb temperature
117-119	Code sheet page number and source

:
:

120-124	Blank

DECK #281
(Deck #181 in TD-1100 Reference Manual)

Common Name: U.S. Navy MAR (Monthly Aerological Record) Synoptic Observations

Period of Record: 1926 – 1945

Things of Interest: Normally, hourly observations were taken, but only six observations per day were recorded on MAR. This form was abandoned in favor of the WBAN forms in 1945.

Supplemental Data Field for Deck #185

Tape Position	Element
79-81	Relative humidity
82	State of the sea
83	Direction of swell
84	Safety and landing conditions
85-86	Present weather
87	Density of upper clouds
88	Direction of upper clouds
89-91	Height of predominate intermediate clouds
92	Density of lower clouds
93	Direction of lower clouds
94-96	Duration of precipitation
97-100	Amount of precipitation
101-103	Duration of fog
104	Past weather – obstruction to vision
105	Past weather – precipitation
106	Past weather – Miscellaneous weather
107-109	Duration of favorable flying weather
110-111	Height of ceiling
112-114	Air temperature
115-117	Wet bulb
118-119	Sea temperature
120-124	Do not use

DECK #555

Common Name: Monterey Telecommunications

Period of Record: October 1966-1969 (continue through 1973 in TD-1100)

Things of Interest: Deck #555 contains the first telecommunications data. Serious data problems exits throughout this deck. The user is advised to exclude this deck from most applications or **USE WITH EXTREME CAUTION.**

Supplemental Data Field for Deck #185

Tape Position	Element
79-90	Do not use

:
:

91-94	Ship call sign
95-124	Do not use

DECK #891

Common Name: NODC (National Oceanographic Data Center)

Period of Record: 1900-1969 (continues through 1977 in TD-1129)

Things of Interest: Observations were taken aboard oceanographic survey ships and consisted of three types of reports. Station data (SD) were usually a complete meteorological report. XBT (Expendable Bathythermographs) and MBT (Mechanical Bathythermographs) contained only surface temperature measurements (primarily sea surface temperature).

Supplemental Data Field for Deck #185

Tape Position	Element
79-80	OSV number
81	Card indicator
82	OSV or ship indicator
83	ice indicator
84-89	Ship number
90-91	Direction of waves
92	Period of waves
93	Height of waves
94-95	Wind speed Beaufort force
96	Sea state
97	Data type
98-100	Relative humidity
111-124	Blank

DECK #897

Common Name: Eltanin (Research vessel)

Period of Record: 1962-1963

Things of Interest: After comparisons with the digital database, it was found that all Eltanin ship reports between June 1962 and June 1963 were missing. These missing reports were re-keyed and placed in Deck #897. All sea temperatures are missing.

Supplemental Data Field for Deck #185

Tape Position	Element
79-124	Blank

DECK #898

Common Name: Japanese

Period of Record: 1954-1969 (continues through 1974 in TD-1129)

Things of Interest: Observations taken by Japanese whaling fleets and other ships in the polar regions of the Southern Hemisphere. This deck is in true TD-1129 format. Element descriptions in the supplemental data section can be found in the Marine Data User's Reference, 1970-Current (NCDC, 1986)

Supplemental Data Field for Deck #185

Tape Position	Element
79-80	Country code
81	Ship direction (code)
82	Ship speed
83	Barometric tendency (code)
84-86	Amount of pressure change (mb)
87	Type of ice accretion of ship (code)
88-89	thickness of ice on ship (code)
90	Rate of ice accretion (code)
91-97	Ship, OSV, or buoy call sign
98	Original wind speed units indicator
99	Original temperature units indicator
100	Sea temperature measurement method indicator
101-102	Wind wave period (seconds)
103-104	Swell wave period (seconds)
105	Description of ice type (code)
106	Effect of ice on navigation (code)
107	Bearing at principal ice edge (code)
108	Distance to the edge from ship (code)
109	Orientation of ice edge (code)
110-111	Amount of precipitation (code)
112-113	Time period for precipitation amount (code)
114	Significant cloud amount (code)
115	Significant cloud type (code)
116-117	Significant cloud height (code)
118	Second past weather (code)
119-120	Second swell direction (code)
121-122	Second swell period (seconds)
123-124	Second swell height (.5 meters)
141-142	QC - Year
143-144	QC - Month
145-146	Peak gust meters/second for buoys
147-148	Blank

DECK #899

Common Name: South African Whaling

Period of Record: 1900-1955

Things of Interest: Many of the original punch cards were destroyed by rodents in South Africa. The remaining cards were received from South Africa in an unknown format. Most of the format was deciphered and placed in the common format fields. All unknown data were placed in the supplemental

data fields.

Supplemental Data Field for Deck #185

Tape Position	Element
79-124	Unknown

DECK #900

Common Name: Australian

Period of Record: 1931-1969 (continues through 1979 in TD-1129)

Things of Interest: Deck #900 was received in "Ship Logs Data Archive Format" from Australia. This deck is in true TD-1129 format. Element descriptions in the supplemental data section can be found in the Marine Data User's Reference, 1970-current (NCDC, 1986).

Supplemental Data Field for Deck #185

Tape Position	Element
79-80	Country code
81	Ship direction (code)
82	Ship speed (code)
83	Barometric Tendency (code)
84-86	Amount of pressure change (code)
87	Type of ice accretion on ship (code)
88-89	Thickness of ice on ship (cm)
90	Rate of ice accretion (code)
91-97	Ship, OSV, or buoy call sign
98	Original wind speed units indicator
99	Original temperature units indicator
100	Sea temperature measurement method indicator
101-102	Wind wave period (seconds)
103-104	Swell wave period (seconds)
105	Description of ice type (code)
106	Effect of ice on navigation (code)
107	Bearing at principal ice edge (code)
108	Distance to the edge from ship (code)
109	Orientation of ice edge (code)
110-111	Amount of precipitation (code)
112-113	Time period for precipitation amount (code)
114	Significant cloud amount (code)
115	Significant cloud type (code)
116-117	Significant cloud height (code)
118	Second past weather (code)
119-120	Second swell direction
121-122	Second swell period (seconds)
123-124	Second swell height (.5 meters)
141-142	QC - Year
143-144	QC - Month
145-146	Peak gust meters/second for buoys
147-148	Blank

:
:

DECK #901

Common Name: Reconstructed Observations from FOSDIC

Period of Record: 1868-1963

Things of Interest: This deck consists of previous temperature extremes which had been removed from decks: 110, 116, 118, 119, 184, 189, 192, 193, 194, 195 and 281. This data was screened and the valid data was recovered and placed into this deck.

Supplemental Data Field for Deck #901

Tape Position	Element
79-80	OSV number
81	Card indicator
82	OSV or ship indicator
83	Ice indicator
84-87	Ship number
88-124	Do not use

DECK #902

Common Name: British Surface Marine Observations

Period of Record: 1957-1961

Things of Interest: Deck #902 is an extension of Deck #184.

Supplemental Data Field for Deck #902

Tape Position	Element
79-80	OSV number
81	Card indicator
82	OSV or ship indicator
83	Ice indicator
84-87	Ship number
88-124	Do not use

DECK #926

Common Name: IMMPC (International Maritime Meteorological Punch Card)

Period of Record: 1956-1969 (continues through 1980's in TD-1129)

Things of Interest: IMMPC data is an extension of Deck #128. It is received by the U.S. from many different countries according to WMO exchange agreements. This deck is in true TD-1129 format. Element descriptions in the supplemental data section can be found in the Marine Data User's Reference, 1970-Current (NCDC, 1986).

Supplemental Data Field for Deck #926

Tape Position	Element
79-80	Country code
81	Ship direction (code)
82	Ship speed (code)
83	Barometric Tendency (code)
84-86	Amount of pressure change (code)
87	Type of ice accretion on ship (code)
88-89	Thickness of ice on ship (cm)
90	Rate of ice accretion (code)
91-97	Ship, OSV, or buoy call sign
98	Original wind speed units indicator
99	Original temperature units indicator
100	Sea temperature measurement method indicator
101-102	Wind wave period (seconds)
103-104	Swell wave period (seconds)
105	Description of ice type (code)
106	Effect of ice on navigation (code)
107	Bearing at principal ice edge (code)
108	Distance to the edge from ship (code)
109	Orientation of ice edge (code)
110-111	Amount of precipitation (code)
112-113	Time period for precipitation amount (code)
114	Significant cloud amount (code)
115	Significant cloud type (code)
116-117	Significant cloud height (code)
118	Second past weather (code)
119-120	Second swell direction
121-122	Second swell period (seconds)
123-124	Second swell height (.5 meters)
141-142	QC – Year
143-144	QC – Month
145-146	Peak gust meters/second for buoys
147-148	Blank

DECK #999

Common Name: U.S. Air Force ETAC (Environmental Technical Applications Center)

Period of Record: 1967-1969

Things of Interest: This deck contains good coverage of the Siberian area although some data may be unreliable.

Supplemental Data Field for Deck #999

Tape Position	Element
79-80	OSV number
81	Card indicator
82	OSV or ship indicator
83	Ice indicator

:
:

84-87	Ship number
88-124	Do not use