

SERIES 15

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REFERENCE MANUAL FOR MARINE CARD FORMAT FOR SERIES 15 (GERMAN) DATA

1860 - 1939

Compiled from Notes, Coding Manuals  
and WMO Conference Reports by  
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COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
1-2	Day	01-31	Day of month	
3	Month	1-9 0 OVX BLANK OVY BLANK	January to September October November December	
4-5	Year	60-99 00-39 60-99 00-59	1860-1899 1900-1939 With OVX in Col 4 1760-1799 With OVX in Col 4 1800-1859	Although the facility exists for recording years before 1860 none have been found. However years coded 40, 41 and 55 have been found and it is thought these are in fact 1840, 41 etc although the over punch has not been used. (Years 1940/41 seem unlikely and 1955 is impossible as the data existed before that date)
6-7	Type of Logbook	00 01 02 03 04 05	Luggers Sailing Ships Steamships Warships Small weather books for N Sea and Baltic Steam Trawlers	} German logbooks originally in Beaufort notation or clear

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
6-7 (Cont)	Type of Logbook (Cont)	06	German Logbooks, Form I	Time in GMT, 7 groups, Sea going ships } Copenhagen 1930 Code
		07	" " Form II	Time in watches, 4 groups
		08	" " Form III	Time in GMT, 4 groups, Steam Trawlers with wireless
		09	Denmark	
		10	Norway	
		11	Holland	None apparently exist
		13	France	
		30	Norway	Originally Sweden code but repunched in Copenhagen 1930 code except for cloud types which are pre-1930 Copenhagen code.
		40	France	6- and 9-, Copenhagen codes } assumed not in Copenhagen 1930 code
		41	Denmark	Beaufort notation
		60	German and other expeditions	Instrumental observations only plus some cloud amounts.
		61	" " " "	Beaufort notation with cloud types in pre 1930 Copenhagen code
		62	" " " "	Clear or Met symbols _____ " _____
		63	" " " "	Originally Sweden code repunched in Copenhagen 1930 code

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
6-7 (Cont)	Type of Logbook (Cont)	64	German and other expeditions	Copenhagen 1930 code
		65	" " " "	Copenhagen 1930 code but cloud type in pre-1930 code
		66	" " " "	As 63
8-13	Sheet	000001-999999*	Sheet number	It appears that this is of little use in determining any useful information. *The range is assumed
4-16	Marsden Square	001-288 300-623 901-936	10° Marsden Square number	} Same as British cards  Equivalent of 800-835 on British cards (None found so far)
7-18	Marsden Sub-square	00-99	1° Marsden sub-square number	As British cards
9-20	Time	00-23 54 58 62 66 70 50	0000-2300 GMT End of watch 1 4 am " 2 8 am " 3 Noon " 4 4 pm " 5 8 pm " 6 Midnight	

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
21-22	Wind direction	00-32	32-Point compass	Supposedly corrected for magnetic variation and punched for even points on
23-24	Wind speed	00-12	Wind speed in Beaufort Force	
25-26	Present Weather	00	Cloudless	Copenhagen 1930 code
		01	Partly cloudy	
		02	Cloudy	
		03	Overcast.	
		04	Not allocated	
		05	Haze (vis. >2000 m)	
		06	Dust Devils seen	
		07	Distant lightning	
		08	) Not allocated	
		09	}	
		10	Precipitation within sight	
		11	Thunder without precipitation	
		12	Not allocated	
		13	Ugly threatening sky	
		14	Squally weather	

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
5-26 (Cont)	Present weather (Cont)	15	Heavy squalls	Copenhagen 1930 code
		16	Waterspouts seen	
		17	Not allocated	
		18	Signs of Tropical Storm forming	
		19	Signs that Tropical Storm has formed	
		20	Precipitation	
		21	Drizzle	
		22	Rain	
		23	Snow	
		24	Sleet	
		25	Rain	
		26	Snow	
		27	Hail	
		28	Slight thunderstorm	
		29	Heavy thunderstorm	
		30	Dust or sand storm	
		31	" " " - has decreased	
		32	" " " - no change	
		33	" " " - has increased	

} In last  
 } 3-hours  
  
 } in last  
 } hour but  
 } not at  
 } time of  
 } observation  
 } other  
 } than  
 } showers  
 } showers

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
25-26 (Cont)	Present weather (Cont)	34	Line of Dust Storms	Copenhagen 1930 code
		36	Drifting snow - slight } generally low	
		37	" " - heavy }	
		38	" " - slight } generally high	
		39	" " - heavy }	
		40	Fog	
		41	Fog - moderate } in last hour	
		42	" - thick }	
		43	" - sky visible } has become thinner in	
		44	" - sky not visible } last hour	
		45	" - sky visible } no change	
		46	" - sky not visible }	
		47	" - sky visible } has become thicker in	
		48	" - sky not visible } past hour	
		49	" - in patches	
		50	Drizzle	
		51	" - intermittent } slight	
		52	" - continuous }	
		53	" - intermittent } moderate	
		54	" - continuous }	

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
1-26 (Cont)	Present weather (Cont)	55	Drizzle - intermittent } thick	Copenhagen 1930 code
		56	" - continuous }	
		57	Drizzle and fog	
		58	Drizzle and rain - slight or moderate	
		59	Drizzle and rain - thick	
		60	Rain	
		61	" - intermittent } slight	
		62	" - continuous }	
		63	" - intermittent } moderate	
		64	" - continuous }	
		65	" - intermittent } heavy	
		66	" - continuous }	
		67	Rain and fog	
		68	Rain and snow - slight or moderate	
69	Rain and snow - heavy			
70	Snow or sleet			
71	Snow - intermittent } slight			
72	" - continuous }			
73	" - intermittent } moderate			
74	" - continuous }			

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
25-26 (Cont)	Present weather (Cont)	75	Snow - intermittent } heavy	Copenhagen 1930 code
		76	" - continuous }	
		77	Snow and fog	
		78	Granular snow	
		79	Ice crystals	
		80	Showers	
		81	" - slight or moderate } rain	
		82	" - heavy }	
		83	" - slight or moderate } snow	
		84	" - heavy }	
		85	" - slight or moderate } rain	
		86	" - heavy } and snow	
		87	" - granular snow	
		88	" - slight or moderate } hail or	
		89	" - heavy } hail and rain	
		90	Thunderstorm	
		91	Rain } thunderstorm in	
		92	Snow or sleet } last hour	
		93	Thunderstorm with rain or snow } slight	
		94	" with soft hail }	

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
5-26 (Cont)	Present weather (Cont)	95 96 97 98 99	Thunderstorm with rain or snow } moderate " with soft hail } " with rain or snow - heavy " with dust storm " with hail - heavy	Copenhagen 1930 code
7-29	Pressure	000-999  (050-870)	Pressure in millimetres of mercury Tens, units, tenths figures only	Recorded to nearest mm only, if value uncertain or from aneroid barometer. Values less than 700 mm and greater than 800 mm converted to millibars and punched in cols 64-68.  Normal expected range is (7)050 to (7)870mm (940.0 - 1050.0 MBS)
30	Visibility	0 1 2 3 4 5 6 7 8 9	Less than 50 m  Greater than 50 m but less than 200 m " " 200 m " " 500 m " " 500 m " " 1000 m " " 1000 m " " 2000 m " " 2000 m " " 4000 m " " 4000 m " " 10 km " " 10 km " " 20 km " " 20 km " " 50 km " " 50 km	International "V" Scale

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
31-34	Air Temperature	-200 to 380	Degrees and tenths centigrade OVX Blank in Col 31 for negative values	Some temperatures in Whole Degrees only. Normal expected range is -20°C to +38°C
35-38	Sea Temperature	-020 to 380	Degrees and tenths centigrade OVX Blank in Col 35 for negative values	Some temperatures in Whole Degrees only Normal expected range is -2 °C to +38°C
39-42	Air-Sea Temperature Difference		Air temp minus Sea temp in degrees and tenths centigrade. OVX blank in Col 39 for negative values	If either or both temperatures in Whole degrees only, difference is in whole degrees
43	Low cloud Type	0	No low cloud	Copenhagen 1930 code  Logbook types:- 06-13, 40, 60, 63-64, 66
		1	Fair weather Cu	
		2	Large Cu without anvil	
		3	Cb	
		4	Sc formed from Cu	
		5	Layer of St or Sc	
		6	Nimbus	
		7	Fair weather Cu and Sc	
		8	Large Cu or Cb, and Sc	
		9	Large Cu or Cb, and Nimbus	
		0	St and/or FrSt	Pre 1930 Copenhagen Code
		1	Cu and/or FrCu	Logbook types 00-05, 30, 61-62, 65
		2	Sc	and probably 41

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
43 (Cont)	Low cloud Type (Cont)	3	Nimbus, Ns, Fracto-Nimbus	Pre 1930 Copenhagen Code Logbook types 00-05, 30, 61-62, 65 and probably 41
		4	Cb	
		5	St and Sc	
		6	Cu and Sc	
		7	Cu and Cb	
		8	Cu and St	
		9	Cb and Sc	
44	Medium cloud Type	0	No medium cloud	Copenhagen 1930 code Logbook types 06-13, 40, 60, 63-64, 66
		1	Thin As	
		2	Thick As	
		3	Single layer Ac or high Sc	
		4	Ac in isolated bands, increasing, Lenticular	
		5	Ac in bands, increasing	
		6	Ac formed from Cu	
		7	AcAs	
		8	Ac cast	
9	Ac, multi-layered, chaotic sky			

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
44 (Cont)	Medium cloud Type (Cont)	0	As	Pre-1930 Copenhagen code
		1	Ac	Logbook types 00-05, 30, 61-63, 65
		2	Ao and As	and possibly 41
45	High cloud Type	0	No Cirroform cloud	Copenhagen 1930 code
		1	Fine Ci - sparse	Logbook types 06-13, 40, 60, 63-64, 66
		2	Fine Ci - abundant	
		3	Anvil Ci	
		4	Fine Ci, increasing, tufted	
		5	Ci or Cs, increasing, below 45°	
		6	Ci or Cs, increasing, above 45°	
		7	Veil of Cs, total cover	
		8	Cs, not increasing, not total cover	
		9	Cc with/without Ci	
		0	Ci	Pre-1930 Copenhagen code
		1	Cs	Logbook types 00-05, 30, 61-62, 65
		2	Cc	and possibly 41
3	Ci and Cs			
4	Ci and Cc			

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
45 (Cont)	High cloud Type (Cont)	5	Cs and Cc	Pre-1930 Copenhagen Code Logbook types 00-05, 30, 61-62, 65 and possibly 41
		6	Ci and Cs and Cc	
46	Total cloud amount	0-9	Nil - 9/10 ths	
		OVX BLANK	10/10 ths	
47	Low cloud amount	0-9	Nil - 9/10 ths	
		OVX BLANK	10/10 ths	
48-49	Sea Direction	00-32	32-point compass 00 = calm sea	Even points only punched
50	Sea amount	0	Quite flat sea	"The old nautical scale" Logbook types 06-09, 13, 30, 40-41
		1	Very quiet sea	
		2	Quiet sea	
		3	Lightly moving sea	
		4	Moderately moving sea	
		5	Moderately heavy sea	
		6	Heavy sea	
		7	High sea	

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
50 (Cont)	Sea amount (cont)	8	Very high sea	"The old nautical scale"
		9	Overpowering heavy sea	Logbook types 06-09, 13, 30, 40-41
		0	Not allocated	Logbook types 00-05, 60-62
		1	Quiet	
		2	Lightly moving	
		3	Moderate	
		4	Vigorous	
		5	Very vigorous	
		6	Strongly moving	
		7	Rough	
8	Very rough			
9	Very high breaking sea			
0	Calm	Douglas scale of 1930 Copenhagen code		
1	Smooth	Logbook types 10 (with OVX), 64, 65 and 13(?)		
2	Slight			
3	Moderate			
4	Rough			
5	Very rough			

There is, so far, no indication which code is used in Logbook type 10 if it does not have an OVX, or in fact whether there are any without (or with, for that matter).

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
50 (Cont)	Sea amount (Cont)	6	High	Douglas scale of 1930 Copenhagen code etc.
		7	Very high	
		8	Precipitous	
		9	Confused	
51-52	Swell Direction	00-32	32 point compass  00 = no swell	Even points only punched
53	Swell amount	0	No swell	"The old nautical scale"  Logbook types 00-05, 07, 60-62
		1	Very low	
		2	Low	
		3	Light	
		4	Moderate	
		5	Moderately rough	
		6	Rough	
		7	High	
		8	Very high	
		9	Intensely heavy	
		OVX BLANK	Confused (cross swell)	

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
53 (Cont)	Swell amount (Cont)	0	No swell	Douglas scale of Copenhagen 1930 code Logbook types 06, 08-10, 13, 40, 64-65
		1	Short or average ) low	
		2	Long )	
		3	Short ) Moderate	
		4	Average ) or	
		5	Long ) High	
		6	Short ) Heavy	
		7	Average )	
		8	Long )	
9	Confused			
54	Past weather	0	Bright, nil - slight cloud ) Vis	Warsaw (1935) modified Copenhagen 1930 c Logbook types 00, 06-13, 30, 40-41, 63-6
		1	Variable cloud ) > 1000 m	
		2	Cloudy or overcast )	
		3	Sand, dust or drifting snow ) Vis	
		4	Fog or thick haze ) < 1000 m	
		5	Drizzle ) Not	
		6	Rain ) showery	
7	Snow or snow and rain ) type			

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
54 (Cont)	Past weather (Cont)	8	Showers	Warsaw (1935) modified Copenhagen 1930 code Logbook types 00, 06-13, 30, 40-41, 63-66
		9	Thunderstorms	
		3	Sand or dust storm	Derived from the "Remarks" column Logbook types 01-05, 60-62
		4	Fog or thick mist	
		5	Drizzle or fine rain	
		6	Rain	
		7	Snow or snow and rain	
		8	Showery	
		9	Thunderstorm (or Tornado)	
		55	Ship's course	
1	NE			
2	E			
3	SE			
4	S			
5	SW			
6	W			
7	NW			
8	N			
9	Unknown or indirect			

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
56	Ship's speed	0	Stopped	Copenhagen 1930 code See note above
		1	1-3 knots	
		2	4-6 knots	
		3	7-9 knots	
		4	10-12 knots	
		5	13-15 knots	
		6	16-18 knots	
		7	19-21 knots	
		8	22-24 knots	
		9	> 24 knots	
57	Pressure change characteristic	0	Rising then falling	Higher or same as 3 hours before
		1	Rising then steady or rising less rapidly	
		2	Rising unsteadily	
		3	Rising steadily or steady	
		4	Steady then rising or falling then rising or rising then rising more quickly	
				Copenhagen 1930 code See note above

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
57 (Cont)	Pressure change characteristic (Cont)	5 6 7 8 9	Falling then rising Falling then steady or falling less Falling unsteadily Falling steadily Rising then falling, or steady then falling, or falling then falling more quickly	Lower than 3 hours before  Copenhagen 1930 code See note above
58-59	Pressure change	00-99	3 hrly pressure change in 5 ths of a millibar. OVX in Col 58 if value greater than 100 5 ths.	If logbook gives values for both 5 ths mb and 10 ths mm only the 10 ths mm value is punched
60-61	Pressure change	00-99	3 hrly pressure change in 10 ths of a millimetre. OVX in Col 60 if value 100-199. OVX in Col 61 if value 200-299.	See note above
62-63	Relative Humidity	01-99 00	1-99% RH 100% RH OVX in Col 63 for RH <u>NOT</u> observed using Assman Psychrometer	
64-68	Pressure	C9400-10500	Pressure in millibars and tenths	If pressure is uncertain or taken from an aneroid barometer it is punched to nearest millibar only. See also Cols 27-29
59-70	Not allocated			

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
71	Beaufort Weather	0	b	
		1	bc	
		2	c	
		3	oc	
		4	o	
		5	No cloud information	
		6	No weather information at all	
		7	}	
		8	} Not allocated	
		9	}	
72	Beaufort Weather	0	Fog	
		1	Thick fog	
		2	Mist	
		3	Thick mist	
		4	Good visibility	
		5	Very good visibility	
		6	Haze	
		7	Gale	
		8	Ugly sky	

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
72 (Cont)	Beaufort weather (Cont)	9	Not allocated	
73	Beaufort Weather	0	Drizzle	
		1	Thick drizzle	
		2	Rain	
		3	Heavy rain	
		4	Shower or squall	
		5	Heavy, shower or squall	
		6	Not allocated	
		7	Snow shower or squall	
		8	Heavy snow shower or squall	
		9	Fine rain or drizzle shower	
74	Beaufort Weather	0	Snow	
		1	Heavy snow	
		2	Hail	
		3	Heavy hail	
		4	Soft hail	
		5	Heavy soft hail	

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
74 (Cont)	Beaufort Weather (Cont)	6	Rain and snow	
		7	Heavy rain and snow	
		8	} Not allocated	
		9		
75	Beaufort Weather	0	Lightning	
		1	Strong lightning	
		2	Thunder	
		3	Heavy thunder	
		4	Thunder and lightning	
		5	Heavy thunder and lightning	
		6	Drizzle and rain	
		7	Heavy drizzle and rain	
		8	Rain and hail	
9	Heavy rain and hail			
76	Beaufort Weather and Special weather phenomena	0	Squall	
		1	Strong squall	
		2	Ground fog	
		3	Fog banks or fog showers	

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
76 (Cont)	Beaufort Weather etc. (Cont)	4	Damp fog	
		5	Coastal fog	
		6	Solar corona	
		7	Solar halo	
		8	Lunar corona	
		9	Lunar halo	
		OVX BLANK	Waterspout or Tornado	
77	Beaufort Weather and Special weather phenomena	0	Dew	
		1	Heavy dew	
		2	Dust storm	
		3	Hoar frost	
		4	Rime	
		5	Glazed frost/ice	
		6	Ice, lumps or pack	
		7	Ice bergs	
		8	Northern or Southern Lights	
		9	Mirage	

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
77 (Cont)	Beaufort Weather etc (Cont)	OVX BLANK	St Elmo's Fire	
		OVY BLANK	Sudden increase in wind	
78	Duration of gales	0	Recorded between 2, 4 hrly obs	
		1	" at one, 4 hrly ob	
		2	" at 2 consecutive 4 hrly obs	
		3	" " 3 " " "	
		4	" " 4 " " "	
		5	" " 5 " " "	
		6	" " 6 " " "	
		7	" " 7-9 " " "	
		8	" " 10-12 " " "	
		9	" " 13-18 " " "	
		OVX BLANK	" " 19-23 " " "	
		OVY BLANK	" " 24 or more consecutive 4 hrly obs	
79	Duration of fog	As for Column 78		
80	Quadrant of wind direction	0	Calm	
		1	020-080 } 32 point compass (even points only)	

COLUMNS	ITEM	CODE	CODE DEFINITION	REMARKS
80 (Cont)	Quadrant of wind direction (Cont)	2	100-160	} 32 point compass (even points only)
		3	180-240	
		4	260-320	