

COMMON SURFACE OBSERVATION CODE [ FM12-VII SYNOP and FM13-VII SHIP ]

2009.11.2

Colour code Black = elements plotted in black: Red = elements plotted in red: Blue = group indicators / optional and non-plotted groups  
 [ Plotting models - to be used in conjunction with Handbook of Weather Messages Parts II and III - Met O 920b and c ]

Section 0  $M_i M_j M_j M_j$  (D...D)\*\*  $Y Y G G i_w$  (Hiii)\*  $Q_c L_o L_o L_o L_o$ \*\* [ \* - used in FM12-SYNOP : \*\* - used in FM13-SHIP ]

Section 1  $i_R i_x h V V$  Nddff  $l_s n T T T$   $2 s_n T_d T_d T_d$  4PPPP 5  $^{app} p p p p$  6RRRt<sub>R</sub> 7ww  $W_1 W_2$  8N<sub>h</sub>C<sub>L</sub>C<sub>M</sub> C<sub>H</sub> [ Note:  $i_x = 2$  or 5 ww  $W_1 W_2$  omitted:  $i_x = 3$  or 6 ww  $W_1 W_2$  plotted as //:  $i_x = 1$  or 4 and 7-group is missing ww  $W_1 W_2$  should be plotted as //. Temperatures are plotted to nearest whole degree. Last three figures only of pressure group are plotted ]

Section 2 222 D<sub>s</sub>v<sub>s</sub> 0s<sub>n</sub>T<sub>w</sub>T<sub>w</sub>T<sub>w</sub> 1P<sub>wa</sub>P<sub>wa</sub>H<sub>wa</sub>H<sub>wa</sub> 2P<sub>w</sub>P<sub>w</sub>H<sub>w</sub>H<sub>w</sub> 3d<sub>w1</sub>d<sub>w1</sub>d<sub>w2</sub>d<sub>w2</sub> 4P<sub>w1</sub>P<sub>w1</sub>H<sub>w1</sub>H<sub>w1</sub> 5P<sub>w2</sub>P<sub>w2</sub>H<sub>w2</sub>H<sub>w2</sub> 6I<sub>s</sub>E<sub>s</sub>E<sub>s</sub>R<sub>s</sub> ICE + [ Plain language or  $c_i S_i b_i D_i z_i$  ]

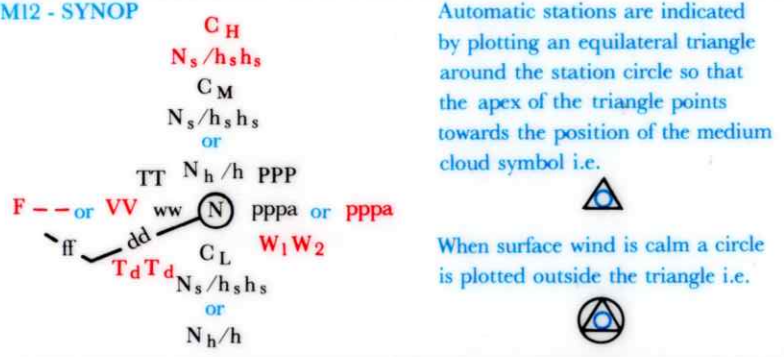
Section 3 333  $l_s n T_x T_x T_x$  2S<sub>n</sub>T<sub>n</sub>T<sub>n</sub>T<sub>n</sub> 3E<sub>s</sub>nT<sub>g</sub>T<sub>g</sub> 4E'sss 8  $N_s C_h s h s$  9SPSPSPSP

Section 5 555  $I V V' f' f'$  2S<sub>n</sub>T<sub>w</sub>T<sub>w</sub>T<sub>w</sub>

**FM12 - SYNOP**

Automatic stations are indicated by plotting an equilateral triangle around the station circle so that the apex of the triangle points towards the position of the medium cloud symbol i.e.

When surface wind is calm a circle is plotted outside the triangle i.e.



CH  
N<sub>s</sub>/h<sub>s</sub>h<sub>s</sub>  
C<sub>M</sub>  
N<sub>s</sub>/h<sub>s</sub>h<sub>s</sub>  
or  
TT N<sub>h</sub>/h PPP  
F -- or VV ww (N) pppa or pppa  
if dd T<sub>d</sub>T<sub>d</sub> C<sub>L</sub> W<sub>1</sub>W<sub>2</sub>  
N<sub>s</sub>/h<sub>s</sub>h<sub>s</sub>  
or  
N<sub>h</sub>/h

**REDUCED SYNOP (SYRED)** [ Symbols/figures plotted as in SYNOP model. The 6- and 8- groups in Sections 1 and 3 respectively are reported only by designated stations ]

Section 0 As in Main Code

Section 1  $i_R i_x h V V$  Nddff  $l_s n T T T$   $2 s_n T_d T_d T_d$  6RRRt<sub>R</sub> 7ww  $W_1 W_2$  8N<sub>h</sub>C<sub>L</sub>C<sub>M</sub> C<sub>H</sub>

Section 3 333  $l_s n T_x T_x T_x$  2S<sub>n</sub>T<sub>n</sub>T<sub>n</sub>T<sub>n</sub> 3E<sub>s</sub>nT<sub>g</sub>T<sub>g</sub> 4E'sss 8  $N_s C_h s h s$  9SPSPSPSP

Section 5 555  $I V V' f' f'$  2S<sub>n</sub>T<sub>w</sub>T<sub>w</sub>T<sub>w</sub>

**ABBREVIATED/REDUCED SHIP** [ Symbols/figures plotted as in SHIP model ]

Section 0 As in Main Code

Section 1  $i_R i_x h V V$  Nddff  $l_s n T T T$  4PPPP 7ww  $W_1 W_2$  8N<sub>h</sub>C<sub>L</sub>C<sub>M</sub> C<sub>H</sub>

Section 2 222D<sub>s</sub>v<sub>s</sub> 0s<sub>n</sub>T<sub>w</sub>T<sub>w</sub>T<sub>w</sub> 6I<sub>s</sub>E<sub>s</sub>E<sub>s</sub>R<sub>s</sub> ICE + [ Plain language or  $c_i S_i b_i D_i z_i$  ]

[ In reduced form solidi indicate data which are not reported e.g. {  $l_s n T T /$  } { 4 P P P / } ]

**FM13 - SHIP** Q<sub>c</sub> 1=Longitude East; 7=Longitude West

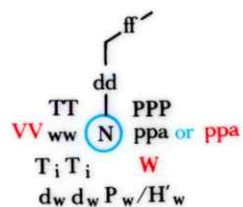
D...D  
n<sub>b</sub>n<sub>b</sub>n<sub>b</sub>  
CH  
N<sub>s</sub>/h<sub>s</sub>h<sub>s</sub>  
C<sub>M</sub>  
N<sub>s</sub>/h<sub>s</sub>h<sub>s</sub>  
or  
TT N<sub>h</sub>/h PPP  
if dd (N) pppa or pppa  
VV ww C<sub>L</sub> W<sub>1</sub>W<sub>2</sub>  
T<sub>w</sub>T<sub>w</sub> N<sub>s</sub>/h<sub>s</sub>h<sub>s</sub> D<sub>s</sub>v<sub>s</sub>  
or  
N<sub>h</sub>/h  
P<sub>wa</sub>P<sub>wa</sub>H<sub>wa</sub>H<sub>wa</sub>  
or  
P<sub>w</sub>P<sub>w</sub>H<sub>w</sub>H<sub>w</sub>  
d<sub>w1</sub>d<sub>w1</sub>P<sub>w1</sub>P<sub>w1</sub>H<sub>w1</sub>H<sub>w1</sub>  
d<sub>w2</sub>d<sub>w2</sub>P<sub>w2</sub>P<sub>w2</sub>H<sub>w2</sub>H<sub>w2</sub>

ww	0	1	2	3	4	5	6	7	8	9
0					☞		S	\$/ℓ	ℓ	(S)
1	=	≡≡	≡≡	◁	☉	) (	(	ℓ	∇	∪
2	,	•	*	*:	~	∇	∇	∇	≡	ℓ
3	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ
4	(≡)	≡	≡	≡	≡	≡	≡	≡	≡	≡
5	,	”	;	;	;	;	∞	∞	;	;
6	•	••	••	••	••	••	∞	∞	*	*
7	*	**	**	**	**	**	↔	↔	↔	↔
8	∇	∇	∇	∇	∇	∇	∇	∇	∇	∇
9	∇	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ	ℓ

ww 07, 93 to 95 and 97. The solidus separates alternative symbols.  
 Missing wind data are indicated thus:  
 x Missing wind speed      x Wind direction variable  
 (Dff) Missing wind direction      (DF) Missing wind speed and direction

Code figure	N	W <sub>1</sub> W <sub>2</sub>	C <sub>L</sub>	C <sub>M</sub>	C <sub>H</sub>	C	a	D <sub>s</sub>
0	○	○				→	∧	
1	⊖	⊖	∩	∩	→	↗	↗	↗
2	⊖	⊖	∩	∩	→	↗	↗	→
3	⊖	⊖	∩	∩	→	↗	↗	↘
4	⊖	⊖	∩	∩	→	↗	↗	↓
5	⊖	⊖	∩	∩	→	↗	↗	↘
6	⊖	⊖	∩	∩	→	↗	↗	←
7	⊖	⊖	∩	∩	→	↗	↗	↗
8	●	∇	∩	∩	→	↗	↗	↑
9	⊗	ℓ	∩	∩	→	↗	↗	
/	⊖							

LIGHT-VESSELS iii Nddff VV<sub>ww</sub>W 4TTT<sub>i</sub>T<sub>i</sub> (L<sub>d</sub>W<sub>d</sub>W<sub>P</sub>H'W) (PPP//) or (PPP app app)



MARID GGL<sub>a</sub>L<sub>a</sub>L<sub>a</sub> L<sub>o</sub>L<sub>o</sub>L<sub>o</sub>T<sub>i</sub>T<sub>i</sub> Nddff VV<sub>ww</sub>W



MARID GGL<sub>a</sub>L<sub>a</sub>L<sub>a</sub> L<sub>o</sub>L<sub>o</sub>L<sub>o</sub>T<sub>i</sub>T<sub>i</sub>



When L<sub>o</sub>L<sub>o</sub>L<sub>o</sub> is less than 500, it is the value of longitude East. When L<sub>o</sub>L<sub>o</sub>L<sub>o</sub> is greater than 500, longitude West is indicated, the value being (L<sub>o</sub>L<sub>o</sub>L<sub>o</sub> - 500)

METAR CCCC GGgg dddff/f<sub>m</sub>f<sub>m</sub> { VVVV RV<sub>R</sub>V<sub>R</sub>V<sub>R</sub>V<sub>R</sub>/D<sub>R</sub>D<sub>R</sub> w'w' N<sub>s</sub>CCh<sub>s</sub>h<sub>s</sub>h<sub>s</sub> N<sub>s</sub>CCh<sub>s</sub>h<sub>s</sub>h<sub>s</sub> } T<sub>d</sub>T<sub>d</sub>T<sub>d</sub>T<sub>d</sub> P<sub>H</sub>P<sub>H</sub>P<sub>H</sub>P<sub>H</sub> or CAVOK

PLAIN LANGUAGE WEATHER REPORTS PLAINOB N<sub>1</sub>N<sub>2</sub>N<sub>3</sub>x YYGGgg  
STATE OF SKY WEATHER VISIBILITY STATE OF ROADS  
(TEMPERATURES) (REMARKS) [Temperatures in degrees and tenths C are in order dry bulb, screen minimum, road surface]

C (high)  
N<sub>s</sub>/h<sub>s</sub>h<sub>s</sub>h<sub>s</sub>  
C (medium)  
TT N<sub>s</sub>/(h<sub>s</sub>)h<sub>s</sub>h<sub>s</sub> QNH P<sub>H</sub>P<sub>H</sub>P<sub>H</sub>P<sub>H</sub>  
VV<sub>ww</sub> (S) dd ff  
T<sub>d</sub>T<sub>d</sub> C (low) (QNTf<sub>m</sub>f<sub>m</sub>)  
N<sub>s</sub>/h<sub>s</sub>h<sub>s</sub>

- S = State of sky (amount of greatest cloud layer reported)
- ☉ 1-3 oktas
  - ☉ 4-5 oktas
  - ☉ 6-7 oktas
  - 8 oktas
  - ⊗ sky obscured
  - sky clear or CAVOK\*

- R = State of roads
- ☐ Dry
  - ☐ Wet
  - ☐ Icy
  - ☐ Snow lying
- SKNO = Sky not observed due to light glare
- Wx = Weather

	Slight	Moderate	Heavy
Rain	•	••	•••
Sleet	*•		*••
Snow	*•	*•	*••
Hail	△		▲
Thunderstorm	⚡		⚡

Vis = Visibility

Fog eg F 80 or F xx ≡≡≡ or ≡≡≡ if sky not obscured

Poor 02 ≡≡≡

Moderate 08 ≡≡≡

Good 30 ≡≡≡

Temperatures are plotted to nearest whole degree, RST is road surface temperature. DB is dry bulb.

\* CAVOK also written instead of VV<sub>ww</sub> plot

VV = First two figures of VVVV up to 5000 m, ie 00 to 50, VV code figures for VVVV values 6000 to 9000 m, ie 56 to 59, > 59 for VVVV = 9999

C,C = Cloud symbol for genus reported by letters CC

P<sub>H</sub>P<sub>H</sub>P<sub>H</sub>P<sub>H</sub> = QNH value in whole millibars plotted as four figures. If three figures only reported, ie QNH < 1000mb, prefix by 0, eg 994 plotted 0994

FRONTAL FEATURE SYMBOLS

Term	Formal (monochromatic)	Polychromatic
Cold front at the surface		
Cold front frontogenesis		
Cold front frontolysis		
Warm front at the surface		
Warm front frontogenesis		
Warm front frontolysis		
Occluded front at the surface		
Quasi-stationary front at the surface		

Direction of movement of a front is indicated by placing the symbol on the appropriate side of the line

NUREP YGGgg iii or P<sub>3</sub>P<sub>3</sub>P<sub>3</sub> C N/h<sub>t</sub>h<sub>t</sub> N/h<sub>s</sub>h<sub>s</sub>

L<sub>a</sub>L<sub>a</sub>L<sub>o</sub>L<sub>o</sub>k

5 NCh<sub>t</sub>h<sub>t</sub> 6 NCh<sub>s</sub>h<sub>s</sub> NCh<sub>t</sub>h<sub>t</sub> NCh<sub>s</sub>h<sub>s</sub> C N/h<sub>t</sub>h<sub>t</sub> N/h<sub>s</sub>h<sub>s</sub>

P<sub>3</sub>P<sub>3</sub>P<sub>3</sub> = Pressure setting in whole millibars prefixed by 0 or 1 as appropriate. GGgg P<sub>3</sub>P<sub>3</sub>P<sub>3</sub> mb set C N/h<sub>t</sub>h<sub>t</sub> N/h<sub>s</sub>h<sub>s</sub>

SFLOC 66600 GG0a<sub>i</sub>0 L<sub>a</sub>L<sub>a</sub>L<sub>o</sub>L<sub>o</sub>k .....  
9n<sub>f</sub>0a<sub>i</sub>0 L<sub>a</sub>L<sub>a</sub>L<sub>o</sub>L<sub>o</sub>k .....

k = half-degree indicator

0 whole degrees  
1 add 1/2° to L<sub>a</sub>L<sub>a</sub>  
2 add 1/2° to L<sub>o</sub>L<sub>o</sub>  
3 add 1/2° to L<sub>a</sub>L<sub>a</sub> and to L<sub>o</sub>L<sub>o</sub>  
5 whole degrees  
6 add 1/2° to L<sub>a</sub>L<sub>a</sub>  
7 add 1/2° to L<sub>o</sub>L<sub>o</sub>  
8 add 1/2° to L<sub>a</sub>L<sub>a</sub> and to L<sub>o</sub>L<sub>o</sub>

GG n<sub>f</sub>

k diagram