

The Experiments of Weather Instruments & Observations lab.

(Second Semester)

ASD / 1st Stage

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General formula of surface code

MiMiMjMJ

$$\left\{ \begin{array}{c} (D \dots D1 \\ or \\ A1bw \ nbnbnb2) \end{array} \right\} YYGGIw \left\{ \begin{array}{c} Iiii3 \\ or \\ 99LaLaLa \ QcLoLoLo1) \end{array} \right\}$$

MMULaULo4 h0h0h0h0im4 IrIxVV Nddff (00fff) 1SnTTT

$$\left\{ \begin{array}{c} 2SnTdTdTd \\ or \\ 29UUU \end{array} \right\} 3P0P0P0P0 \left\{ \begin{array}{c} 4PPPP \\ or \\ 4a3hhh) \end{array} \right\} 5aPPP 6RRRtr$$

$$\left\{ \begin{array}{c} 7wwW1W2 \\ or \\ 7wawaWa1Wa2) \end{array} \right\} 8NhCLCMCH 9GGgg$$

Drawing and analysis of surface observation codes and instruments used for measurement

The surface observation code is written in the following form:

MiMiMjMj YYGGI_w

Iliii I_RI_xhVV Nddff 1S_nTTT 2S_nT_dT_dT_d

3P_oP_oP_oP_o 4PPPP 5aPPP 6RRRt_R 7w_WW₁W₂

8N_hC_LC_MC_H

- **Note:** There are latitude and longitude codes (LaLaLa) and (LoLoLo) but they are not mentioned in the main code above.

MiMiMjMj



The type of station, and replace it with one of the following formulas:

If the report is from a stable ground station (AAXX)

If the report was taken from a marine station (BBXX)

If the report is from a mobile earth station (OOXX)

YYGGI_w



YY	Date (01-31)
GG	Time (00-23)
I _w	The source and units of wind speed, takes the following values:
0	If the speed is estimated (m/s)
1	If the speed is measured (m/s)
2	If the speed is estimated (knot)
3	If the speed is measured (knot)
/	If the wind speed is not available

IIiii



II Zone number / iii Station number

IRIxhVV



Visibility group:

IR	<i>Gide of Sediment group</i>
0,1,2	<i>In the present of sediment This means that there is a sixth group</i>
3,4	<i>In the absence of sediment, omitted or unattended sediment This means that the sixth group does not exist</i>
IX	<i>Gide of weather case</i>
1	<i>Presence of weather case This means that there is a seventh group</i>
2	<i>In the absence of weather case This means that the seventh group does not exist</i>
h	<i>Base height of lower cloud</i>

h	feet	Meters
0	0-100	0-50
1	100-300	50-100
2	300-600	100-200
3	600-900	200-300
4	900-1900	300- 600
5	1900-3200	600-1000
6	3200-4900	1000-1500
7	4900-6500	1500-2000
8	6500-8000	2000-2500
9	8,000 or higher or no cloud	2500 or higher or no cloud
/	Height of base of cloud is not known.	

Cloud Base Height Measuring Devices:

- 1. Balloon*
- 2. Scout*
- 3. The siliometer*
- 4. By the mathematical equation:*

$$H=(T-T_a)/6.5*1000$$

where:

H is the height of the cloud

T dry temperature

T_a The degree of dew point

6.5 is a constant number which is the rate of temperature decrease per 1000 metres.

VV	<i>Visibility (00-99)</i>
0 - 50	<i>We add two zeros to the right and the visibility is measured in units (m)</i>
51 - 55	<i>Doesn't used</i>
56 – 80	<i>We subtract 50, and the visibility is measured in units (km).</i>
81 – 89	<i>Visibility is calculated from the equation below and is measured in units (km)</i> $VV=(\text{ones digit})*5+30$
90 – 99	<i>This group gives visibility at sea</i>

The location of the visibility is as shown on the station

vv



H.W

Q\\ Below is the surface code of the two stations at two different times. Draw the code with writing all the information for each station, and what is the value of the real visibility range for each station.

1- AAXX 20093

40811 32560

2- AAXX 09182

40394 11438

3- AAXX 20123

40642 11530

4- AAXX 23122

40629 31903