The Experiments of Weather Instruments & Observations lab.

(First Semester)
ASD / 2nd Stage
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General formula of surface code

MiMiMjMJ

$$\left\{ \begin{array}{c} (D\ \ldots\ldots D1 \\ or \\ A1bw\ nbnbnb2 \end{array} \right\} \textbf{YYGGIw} \left\{ \begin{array}{c} \textbf{IIiii3} \\ or \\ 99LaLaLa\ \ QcLoLoLo1 \end{array} \right\}$$

$$\text{MMULaULo4}\ \ \text{h0h0h0h0im4}\ \textbf{IrIxVV}\ \ \textbf{Nddff}\ \ (00\text{fff})\ \ \textbf{1SnTTT}$$

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

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

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

The surface observation code is written in the following form:

$M_iM_iM_jM_j$ $YYGGI_w$

$IIiii$ I_RI_xhVV $Nddff$ $1S_nTTT$ $2S_nT_dT_dT_d$
$3P_oP_oP_oP_o$ $4PPPP$ $5aPPP$ $6RRRt_R$ $7wwW_1W_2$
$8N_hC_LC_MC_H$

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

$M_iM_iM_jM_j$ ←

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)
Iw	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*

I_RI_xhVV ←

Visibility group:

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

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:

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

where:

H is the height of the cloud

T dry temperature

Ta The degree of dew point

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

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

The location of the visibility is as shown on the station

vv   ◯