The Experiments of Weather Instruments & Observations lab.

(First Semester)

ASD / 2nd Stage

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General formula of surface code

MiMiMjMJ

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

MMULaULo4 h0h0h0h0im4 **IrIxVV Nddff** (00fff) **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*

$I_R I_x$hVV ←

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