**The Experiments of Weather Instruments & Observations lab.**

**(First Semester)**

**ASD / 2nd Stage**

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***General formula of surface code***

**MiMiMjMJ**

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

$$ MMULaULo4 h0h0h0h0im4 IrIxVV Nddff \left(00fff\right) 1SnTTT $$

 $\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 YYGGIw

IIiii IRIxhVV Nddff 1SnTTT 2SnTdTdTd 3PoPoPoPo 4PPPP 5aPPP 6RRRtR 7wwW1W2 8NhCLCMCH

* **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)

YYGGIw **←**

|  |  |
| --- | --- |
| **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

IRIxhVV **←**

Visibility group:

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

|  |  |  |
| --- | --- | --- |
| Meters | feet | h |
| 0-50  | **0-100**  | **0**  |
|  50-100  | **100-300**  | **1**  |
| 100-200  | **300-600**  | **2**  |
| 200-300  | **600-900**  | **3**  |
| 300- 600  | **900-1900**  | **4**  |
| 600-1000  | **1900-3200**  | **5**  |
| 1000-1500  | **3200-4900**  | **6**  |
| 1500-2000  | **4900-6500**  | **7**  |
| 2000-2500  | **6500-8000**  | **8**  |
| 2500 or higher or no cloud  | **8,000 or higher or no cloud**  | **9**  |
| 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**