The Experiments of Weather Instruments & Observations lab.

(First Semester)
ASD / 2nd Stage
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Analysis and drawing of observation codes for the upper atmosphere

Devices used for upper atmosphere observations:

1. Radiosonde
2. Pilot ballon
3. Radiowind
4. Satellites

Upper observations codes:

It observations the upper atmospheres for synoptic analyzes and weather forecasts in terms of atmospheric pressure, temperature, relative humidity, and wind speed and direction.

$M_iM_iM_jM_j$ ←

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

If the report is from **a fixed earth station** (TTAA)

If the report was taken from **a marine station** (UUAA)

If the report was taken from **a small balloon or balloon** (XXAA)

If the report is from **a portable station** (IIAA)

$YYGGI_d$ ←

Date and time code

The date takes values between (01-31) or (51-81)	YY
Time and takes values between (00-23)	GG
Evidence of the last standard pressure level reached by the device	I_d

code	1	2	3	4	5	6	7	8	9	0	/
Standard pressure level (hpa)	100	200	300	400	500	-	700	800	900	1000	*There is no wind information in the report*

IIiii   ←

II   Zone number   /   iii   Station number

99 $P_oP_oP_o$ $T_oT_oT_{ao}D_oD_o$ $d_od_od_of_of_o$ ←

The code at the station's surface where:

Atmospheric pressure	$P_oP_oP_o$
Temperature and tenths	$T_oT_oT_{ao}$
The difference between temperature and dew point	D_oD_o
Wind direction	$d_od_od_o$
Wind speed	f_of_o

- *The location of the weather elements on the station shall be as follows:*


```
TT        PPP(hhh)
     ◯───────
DD
```
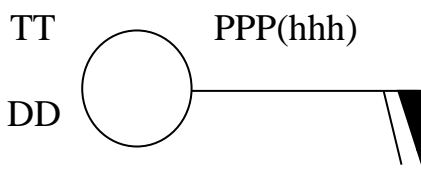
1. **The real value of the pressure level rise** (**hhh**): *is calculated in a different way for each level, as will be mentioned in detail later, and it is measured in units (gpm).*

2. **The value of the dew point** (**T_dT_d**): *is found according to the following equation for all standard levels*

$$T_dT_d = TTT_a - |DD|$$

*The temperature is **positive** if its tenths (T_a) are **even numbers**.*

*The temperature is **negative** if its tenths (T_a) are **odd numbers**.*

DD *is absolute and unsigned:*

a - If its value is within (00-50), it is written in tenths.

22547 means its real value is 4.7

b - If its value is within (56-99), then we subtract 50 from it.

For example, 29458 means its real value is 8 as well as 15773 means 23.

c- The value of DD *is plotted on the station as it is and applied in the above equation to get the value of* T_dT_d.

3. *Wind direction and speed:*

a- Write the tens digit for the direction of the wind at the end of the arrow for accuracy.

b- The wind speed remains the same when the date is added to 50, and the speed doubles when the date is normal, for example:

28022 *for the date* 23121: *the speed is* 22 m/s *and draws* 44 knots

20050 *for the date* 80121: *the speed remains the same, i.e. 50 knots*

C - If the wind speed is more than 100 kt. The hundreds digit is added to the ones in the direction, for example:

28655: 285 *direction /* 155 *speed*

29700: 295 *direction /* 200 *speed*