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.

MiMiMjMj ←

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 ←

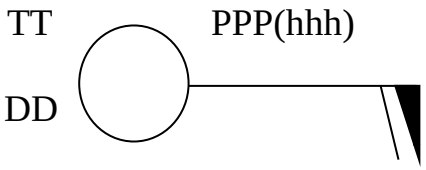
II Zone number / iii Station number

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*:



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*