



دانشگاه رازی

Synoptic Meteorology 1

Lecture 3

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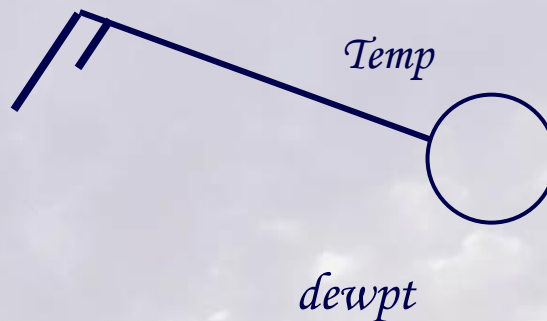
Razi University

<http://www.razi.ac.ir/sahraei>

Station Model

Allows the data to be plotted in a condensed and usable format

Location of the station on the map



The name of the location or airport abbreviation might be given nearby

Temperature information in degrees Fahrenheit.

Remember, winds are identified as the direction FROM which they come

This would be a west northwest wind or about 290°

*The coding for the wind speed symbols can be **generalized** as:*



half staff about 5 knots

full staff about 10 knots



these are additive for the total amounts

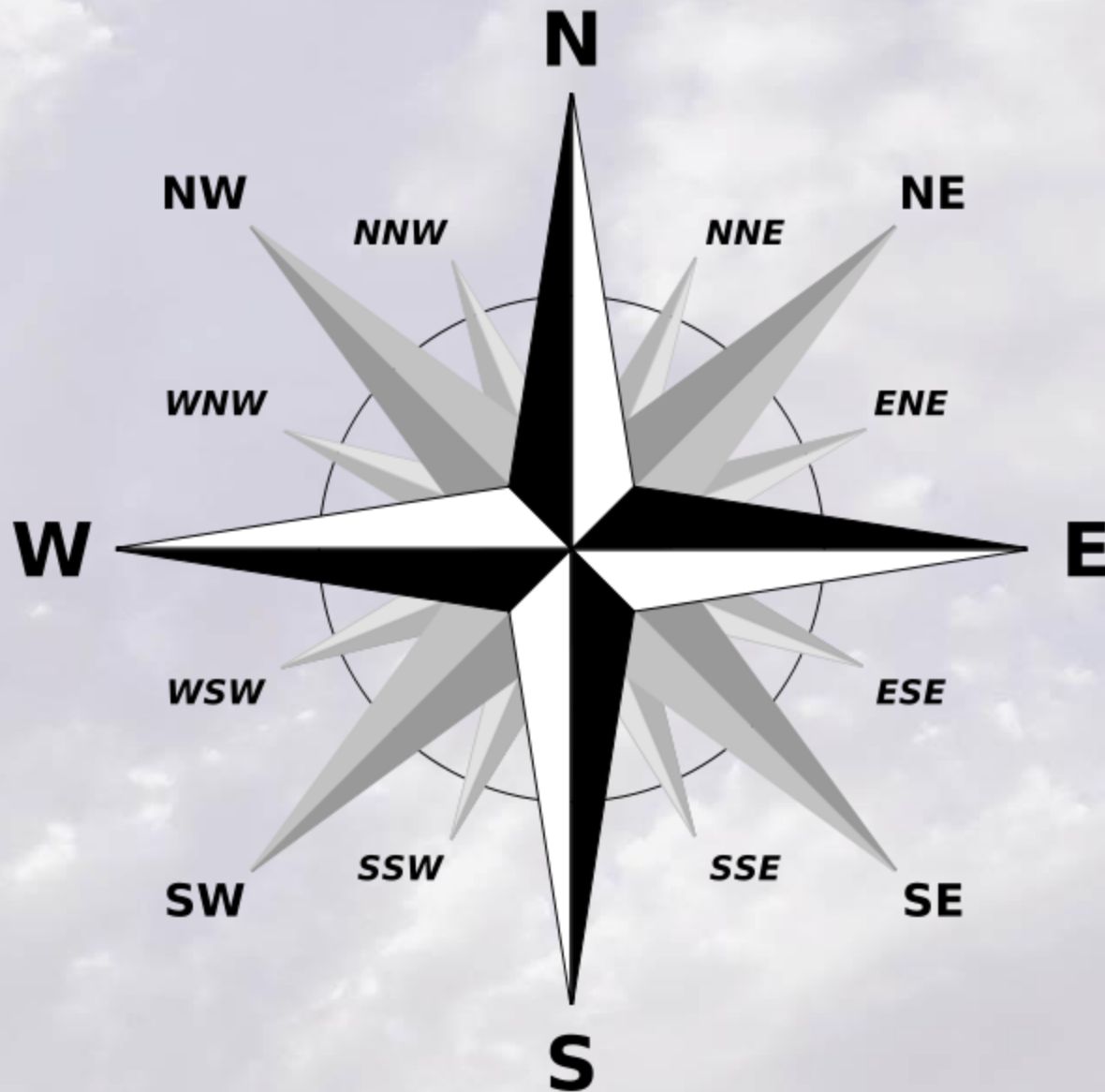
three full staffs=30 knots



65 knots

flag about 50 knots





Example Wind Barb



**Read as:
Northwest Wind
at 25 Knots**



N 25 kt



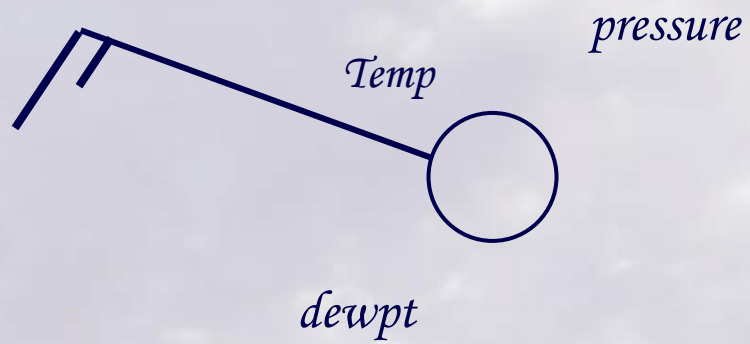
W 65 kt



SW 20 kt

Wind Symbols

Station Model



Barometric Pressure is VERY important!

average barometric pressure at sea level is 1013.25 mb

~~1013.3~~

13.3_x

133

barometric pressure varies around this value



somewhat higher

+ about 30 = 1043

1013.3

somewhat lower

- about 30 = 983

From the three numbers, you must INTERPRET whether the preceding value is

10

or

9

Which would make the value most realistic?



What is the pressure?

(1013.3)

084

08.4

1008.4

962

96.2

996.2

281

28.1

1028.1

875

87.5

987.5

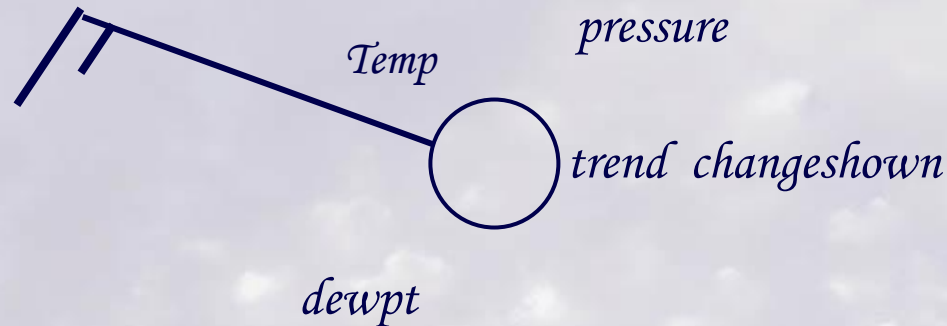
322

32.2

1032.2

Not only is the pressure itself important, but so is the way the pressure has been changing.

So, more information may be given and must be coded.



+ it is higher now than in the past

- it is lower now than in the past

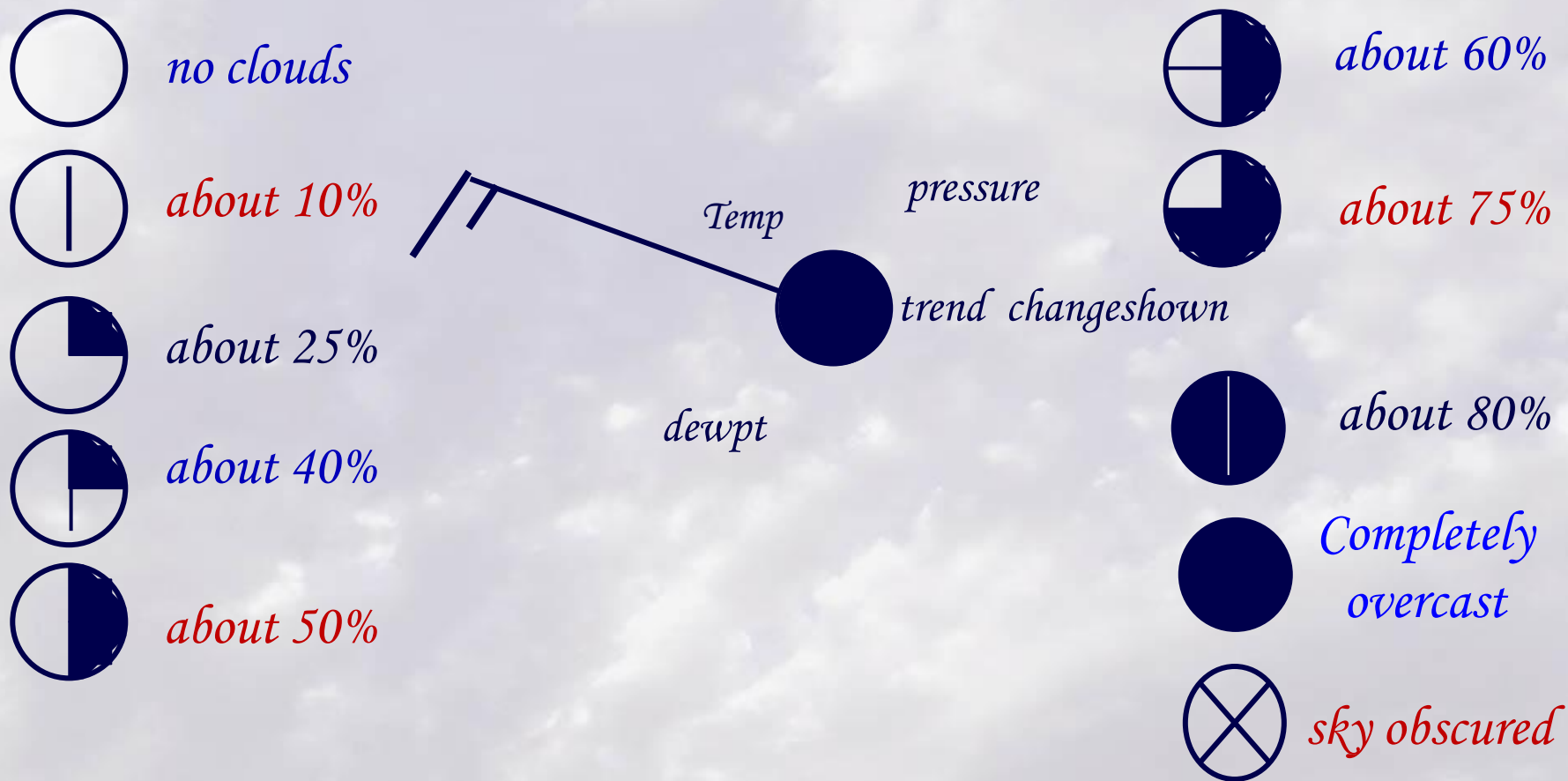
the amount of change in the past three hours

again, reported in *TENTHS* without the decimal



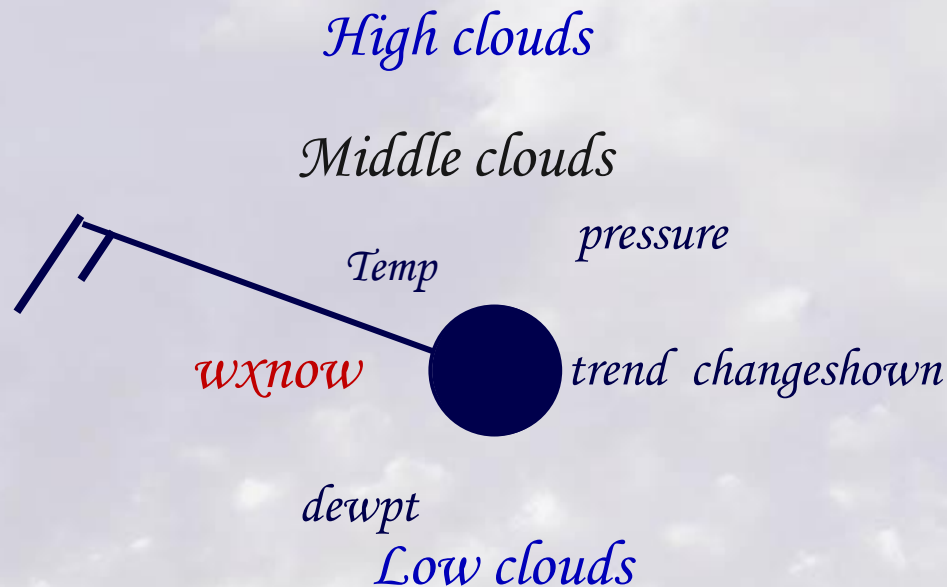
Total amount of cloud

graphic depiction of percentage of the sky covered by clouds



Symbol positions to identify the cloud types

Cloud types tell much about the weather conditions. The cloud types are identified by symbols, and classed as low, middle, and high clouds.



What is the present weather?

The current weather is very important.

A detailed set of symbols provides weather descriptions.

100 different symbols provide details about the
PRESENT WEATHER

≡ *fog*

⌞ *thunderstorm*

⌞ *drizzle*

< *lightning*

● *rain*

* *snow*

Combining symbols tells more of the detail

● *intermittent rain,
slight at time of
observation*

● ● *continuous rain,
slight at time of
observation*

● ● *intermittent rain,
moderate at time
of observation*

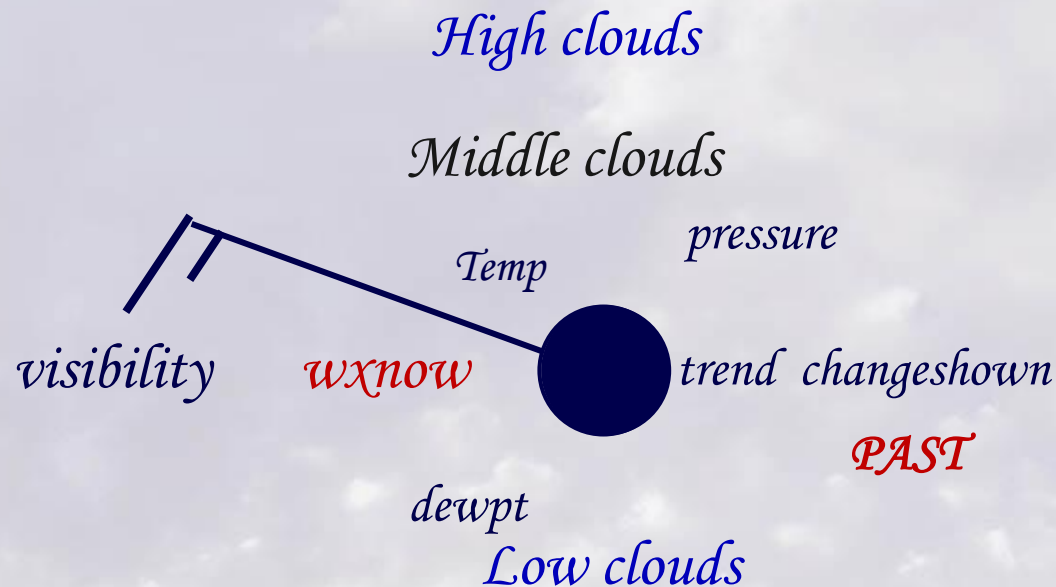
● ● ● *continuous rain,
moderate at time of
observation*

● ● ● *intermittent rain,
heavy at time of
observation*

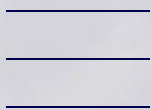
● ● ● ● *continuous rain,
heavy at time of
observation*

The visibility is especially important for pilots

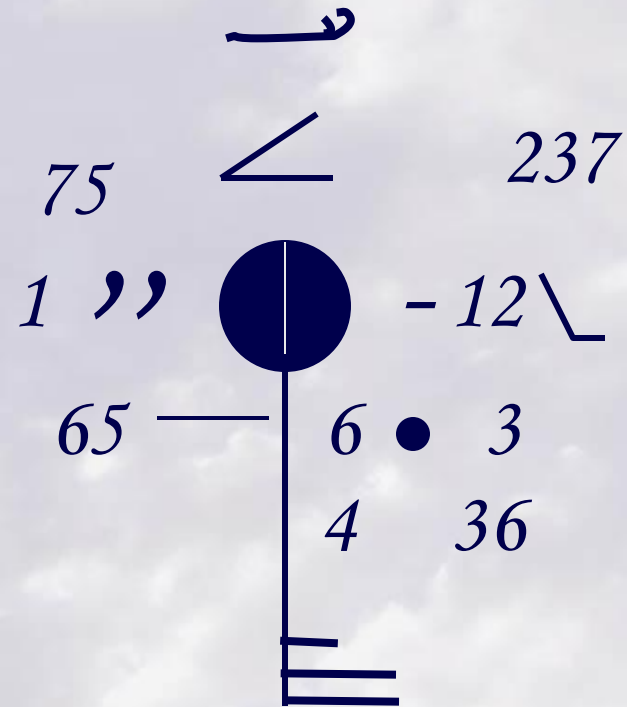
Visibility is given in miles and fractions

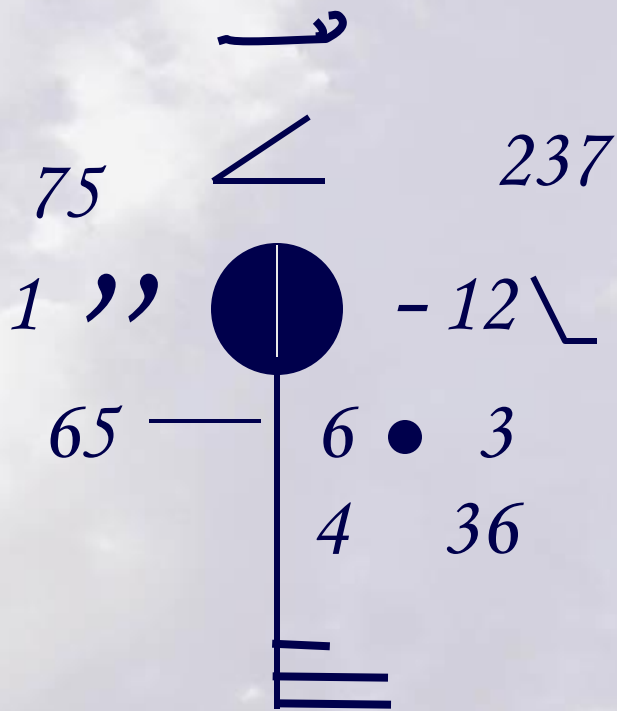


The past weather uses symbols



Decode this station





temperature 75
 dew point 65
 wind direction south
 wind speed 25 knots
 amount of sky cover 80%

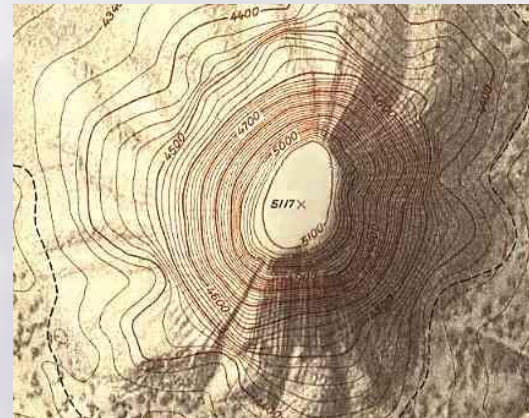
any low clouds? yes
 any middle clouds? yes
 any high clouds? yes
 amount of low and middle clouds 6
 height of cloud base 4
 visibility 1 mile
 barometric pressure 1023.7 mb
 trend in pressure falling
 pressure three hours ago 1024.9
 how has pressure changed down then steady
 present weather continuous slight drizzle
 past weather rain
 when precipitation began/ended 4
 amount of precipitation .36"

Coordinated Universal Time (UTC)

- Is the reference clock adopted by weather organizations around the world
 - Greenwich, England is the reference time zone for UTC
 - Meteorology also uses a 24-hour military-style clock
 - UTC
 - 1200(noon)
 - 0000(midnight)
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How to Think about Contouring

- *Like topographic map*
- *Lines of constant height in this picture*
- *Walk along one of these lines -- stay at exactly the same altitude the ENTIRE time*



What Else Do We Contour?

- *Isopleth is a line on a map that connects all the points of a given variable with the SAME SPECIFIED VALUE*
 - *Isobar - line of constant pressure*
 - *Isotherm - line of constant temperature*
 - *Isotach - line of constant wind speed*
 - *Isodrosotherm - a line of constant dewpoint*
 - *Isohyet - a line of constant precipitation accumulation*
 - *Isoneph - a line of constant cloudiness*
 - *Isohaline - a line of constant salinity (saltiness in the ocean)*
 - *Isoheight - a line of constant height*
-