Winds

Winds on a weather map are represented by wind barbs; e.g.,

Notes:

- The wind is blowing from the side with the flags and pennants (think an arrow with feathers)
- Speeds are given by:
  - pennant: 50 knots
  - flag: 10 knots
  - half flag: 5 knots

= 75 knots
Winds

Winds on a weather map are represented by wind barbs; e.g.,

Notes:

- The wind is blowing from the side with the flags and pennants (think an arrow with feathers)
- Speeds are given by:

\[
1 \text{ knot} = 1 \text{ nautical mile/} \text{hr} \\
= 1.15 \text{ mile/} \text{hr} \\
= 1.85 \text{ km/} \text{hr} = 0.51 \text{ m/} \text{s}
\]
The Station Model

The data reported at a weather station looks like (in simplified form):

Notes:
The Station Model

The data reported at a weather station looks like (in simplified form):

Notes:

- Winds use the same scale as before; i.e.,
  - pennant: 50 knots
  - flag: 10 knots
  - half flag: 5 knots
The Station Model

The data reported at a weather station looks like (in simplified form):

Notes:

- In the US, the temperature and dew point temperature are given in °F. Everywhere else it's °C.
The Station Model

The data reported at a weather station looks like (in simplified form):

Notes:

- Precipitation types are represented by symbols:
  - ** light rain
  - *** moderate rain
  - **** heavy rain
  - *** light snow
  - **** moderate snow
  - ◦ freezing rain
  - and others.....see Appendix C (or wikipedia)
The Station Model

The data reported at a weather station looks like (in simplified form):

- Shading of the station dot shows the extent of cloud cover:
  - clear
  - half coverage
  - full coverage (overcast)

Notes:
- etc.....see Appendix C for details
The Station Model

The data reported at a weather station looks like (in simplified form):

Notes:

- The trend line shows the change in pressure over the past 3 hours:
  - steady (no change)
  - rising
  - falling
  - falling, then rising
  - etc.....
The Station Model

The data reported at a weather station looks like (in simplified form):

Notes:

- The pressure is shown using a three-digit code; i.e.,:

  173 → 1017.3 mb
  027 → 1002.7 mb
  846 → 984.6 mb
The Station Model

The data reported at a weather station looks like (in simplified form):

- The rule of thumb is

  If the three-digit code is less than 500: Add a 10 in front and a decimal before the last digit

    173 → 1017.3 hPa

  If the code is greater than 500: Add a 9 in front and a decimal before the last digit

    846 → 984.6 hPa
Upper Levels (e.g., 500 mb)

Data at upper levels is similar, but with a couple of changes:

- temperature: -14
- dew point: 23
- height: 575
- depression

Notes:
Upper Levels (e.g., 500 mb)

Data at upper levels is similar, but with a couple of changes:

Notes:

- Instead of the dew point temperature, we get the dew-point depression, defined as:

  \[ \text{depression} = \text{temperature} - \text{dew point temperature} \]
Upper Levels (e.g., 500 mb)

Data at upper levels is similar, but with a couple of changes:

- temperature: -14
- dew point: 23
- depression: 575

Notes:

- Somewhat inexplicably, the temperature and dew point depression are given in °C. (Remember the surface temperature was °F.)
Upper Levels (e.g., 500 mb)

Data at upper levels is similar, but with a couple of changes:

-14  \[ 575 \]  height

23

Notes:

- Instead of pressure, we get the height of the surface, in units of decameters (or 10 m)

\[ 575 \rightarrow 5750 \text{ m} \]
Frontal Symbols

- **cold front**
- **warm front**
- **stationary front**
- **occluded front**

For the cold, warm and occluded fronts, the symbols show the direction of motion.
Frontal Symbols

- **cold front**
  - cold
  - warm

- **warm front**
  - warm
  - cold

- **stationary front**
  - cold
  - warm

- **occluded front**
  - warm
  - cold

For the cold, warm and occluded fronts, the symbols show the direction of motion.
Frontal Symbols

- **cold**
  - cold front
  - warm
  - warm front
  - cold
  - stationary front
  - warm
- **occluded front**

For the cold, warm and occluded fronts, the symbols show the direction of motion.
Frontal Symbols

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For the cold, warm and occluded fronts, the symbols show the direction of motion.