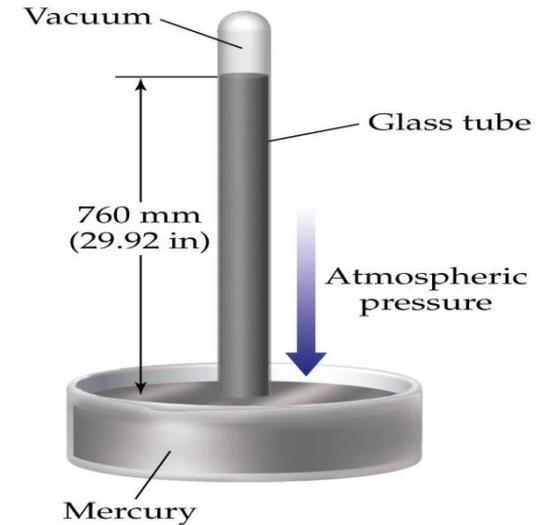
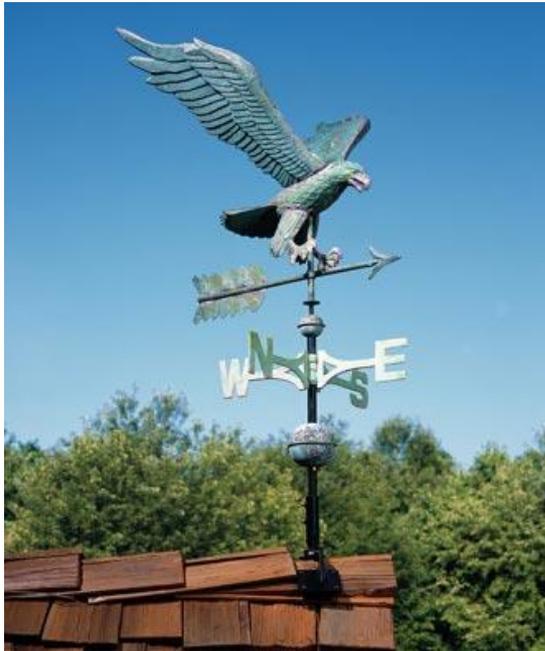


How to Measure Wind?

- **Air pressure** is measured using a **barometer** (from Greek *baros* 'weight').



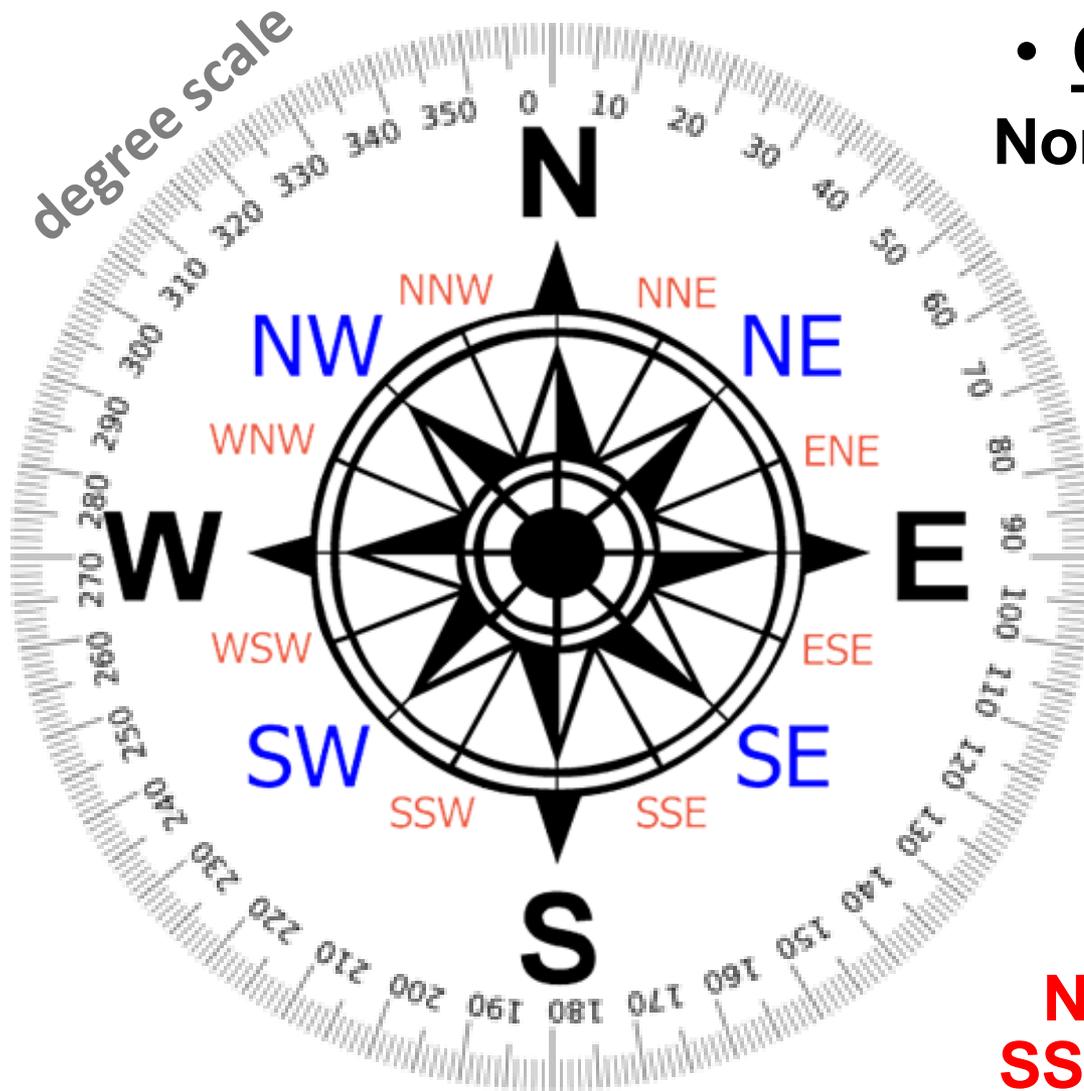
Winds are characterized by their **direction** and **speed**.

- **Winds are named** by the **direction from which they come**.



- **Wind speed** is measured by **anemometer** (from Greek *anemos* 'wind').

Compass Rose Review



- Cardinal directions:
North, East, South, West

- Half-cardinal
(*intercardinal*)
directions:

Northeast,
Southeast,
Southwest,
Northwest

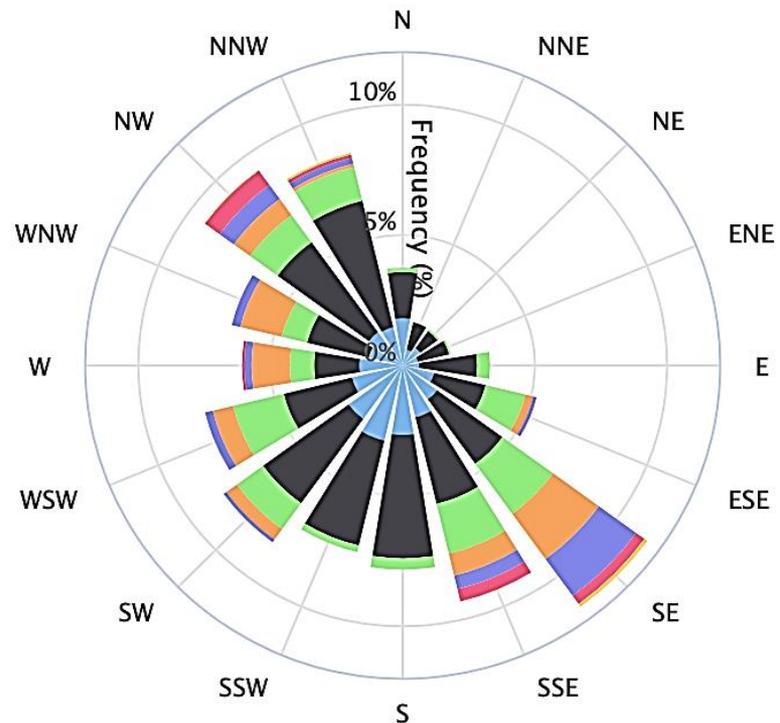
- Intermediate
directions:

NNE, ENE, ESE, SSE,
SSW, WSW, WNW, NNW

Wind Rose

A wind rose shows how **wind speed** and **direction** are typically distributed at a particular location over a specified period of time (year, season, month).

- uses circular format
- *typically* uses **16+ directions**
- the length of each "spoke" around the circle indicates the relative amount of time (in %) that the wind blows from the indicated direction.
- colors along the spokes indicate categories of wind speed.



A wind rose helps quickly indicate the **dominant wind directions** and the **direction of strongest wind speeds**.

Wind Rose for Aviation

- Compiling a wind rose is one of the **preliminary steps taken in constructing airport runways**, as aircraft typically perform their best take-offs and landings pointing into the wind.

- In the example to the right, measured at Philadelphia International Airport, **two dominant wind directions** can be seen, “SW” and “N-S line”.



PHILADELPHIA INTL [PHL] Windrose Plot

[All Year]

Period of Record: 01 Jun 2010 - 01 Aug 2010

Number of Obs: 1852 Calm: 6.3% Avg Speed: 8.2 mph

