How is Weather Predicted?

meteorology: the study of weather

Thermometer (*therm* Greek for heat)

- Measures air temperature
- If the air cools down during the day…
- Or if the air warms up in the evening…
- …rain may be on the way.

Barometer (*bar* Greek for pressure)

- Measures air pressure
- A rising barometer reading occurs just before colder air arrives.
- Since cold air usually holds less water than warm air, less humidity means less chance for rain.

Anemometer (*anemos* Greek for wind)

- Measures wind speed
- A change in wind speed may mean a change in weather is about to occur.

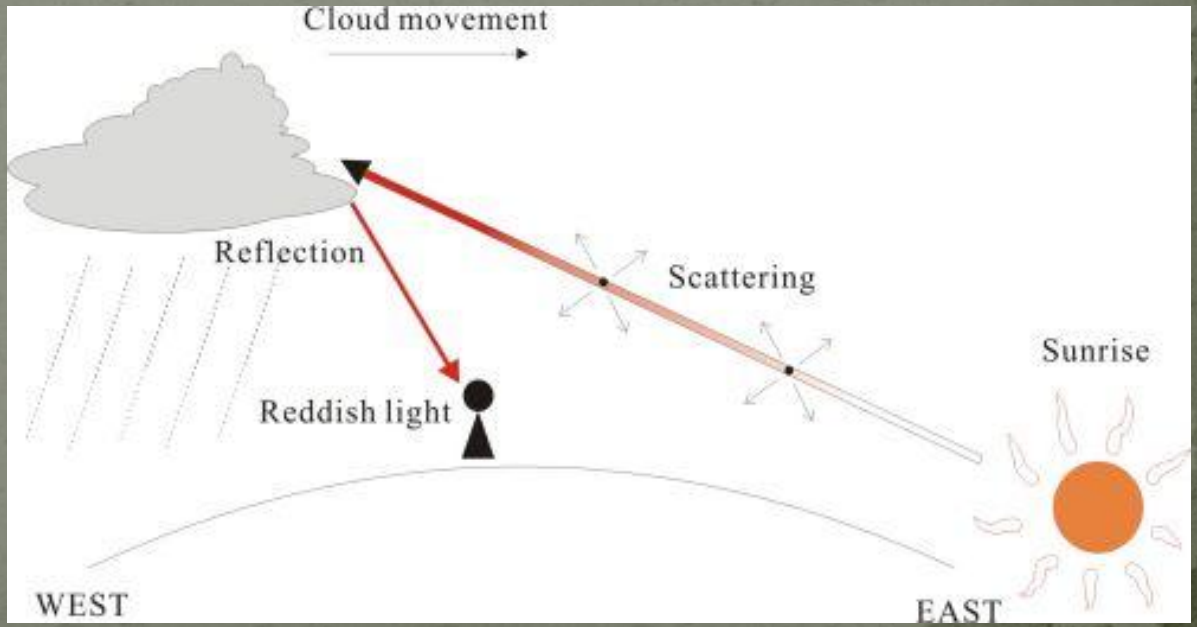
Wind Vane or Wind Sock

- Measure wind direction
- If it is winter and a wind starts blowing from the south, you can predict that the weather will soon be warmer.

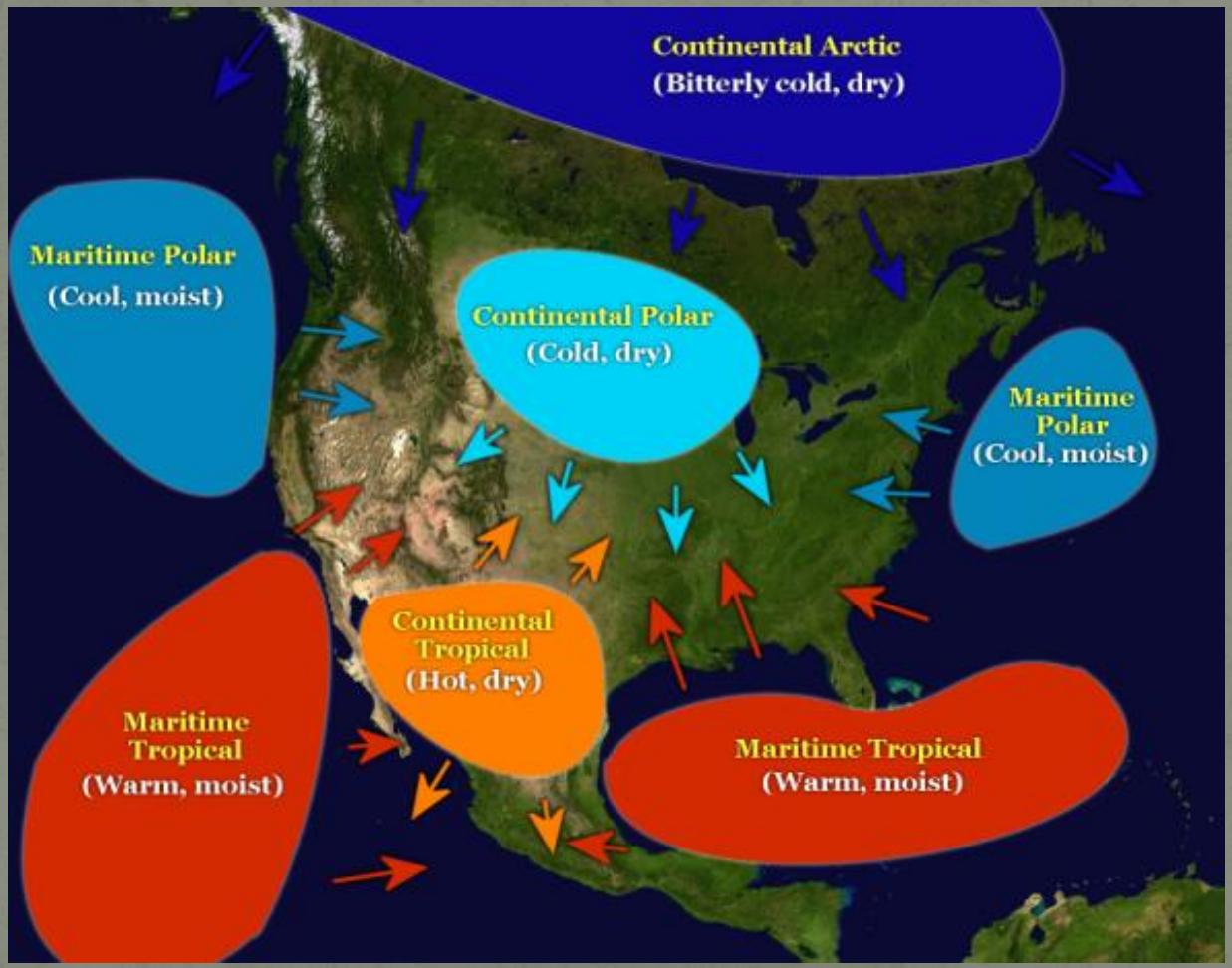
Hygrometer (*hygro* Greek for moist)

- Measures humidity
- An increase in humidity often means it is about to rain.

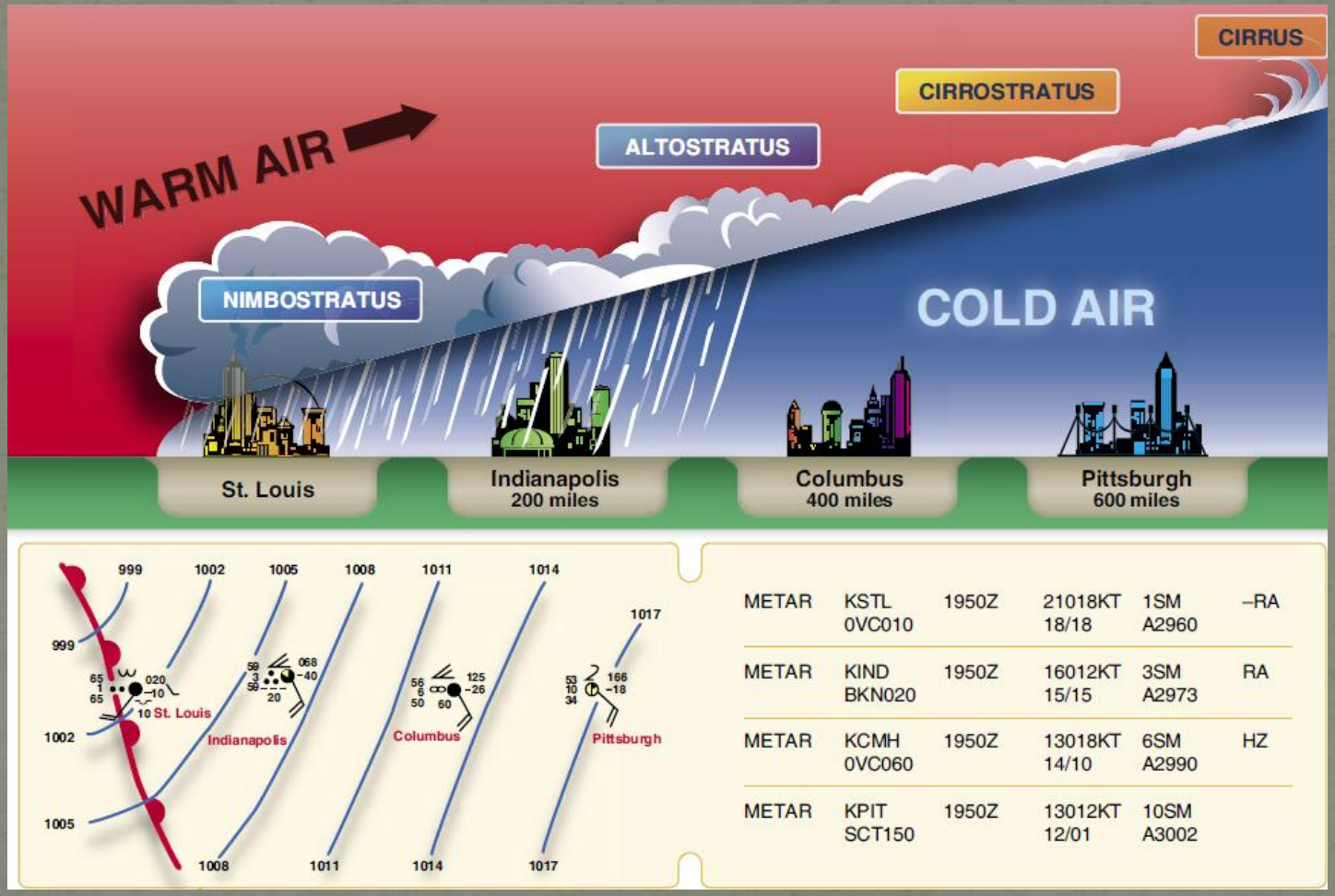
People can also predict the weather, although less accurately, just by observing the sky.



air mass: a large body of air that has about the same temperature and humidity throughout

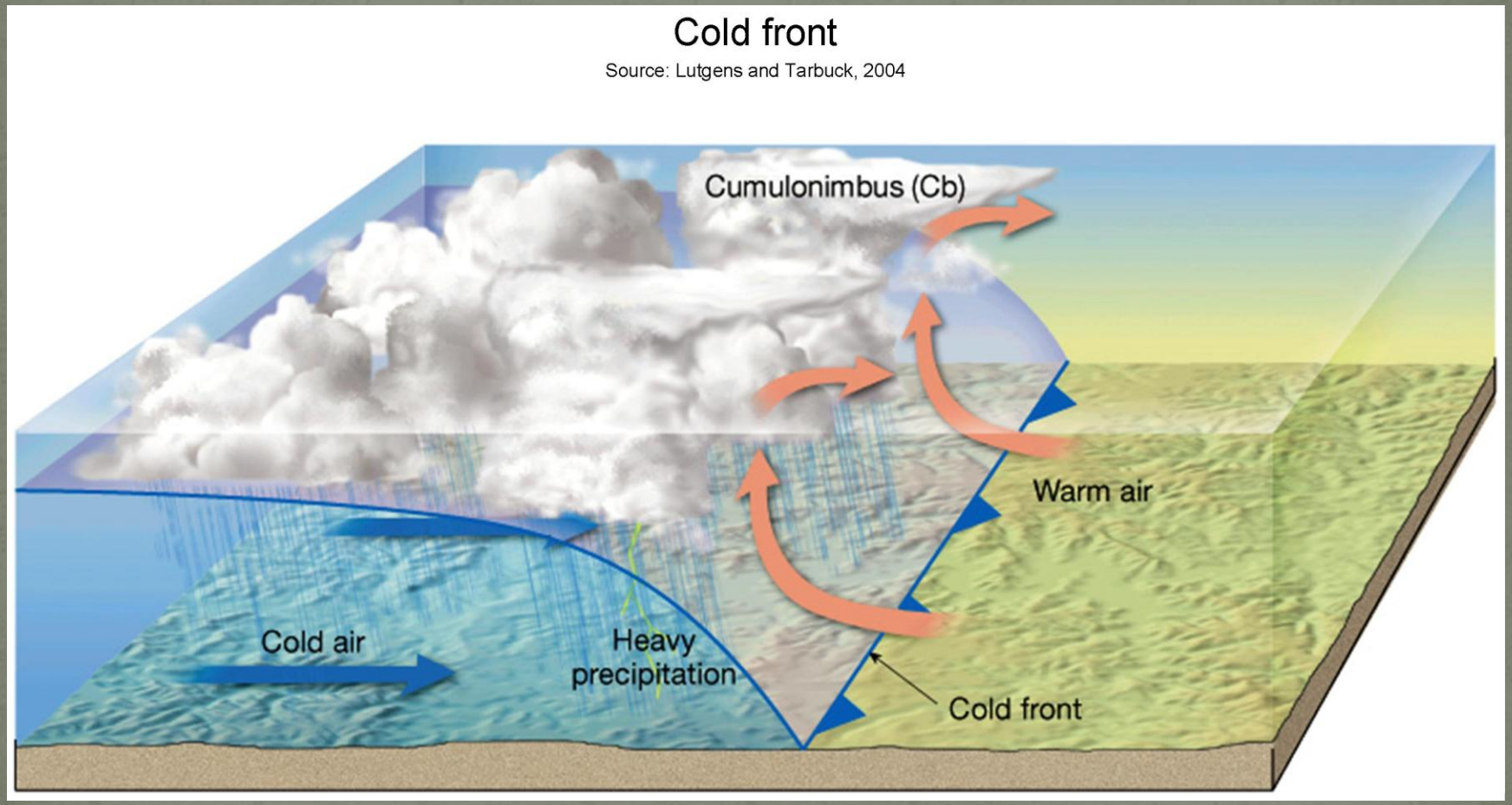


front: the border where two air masses meet

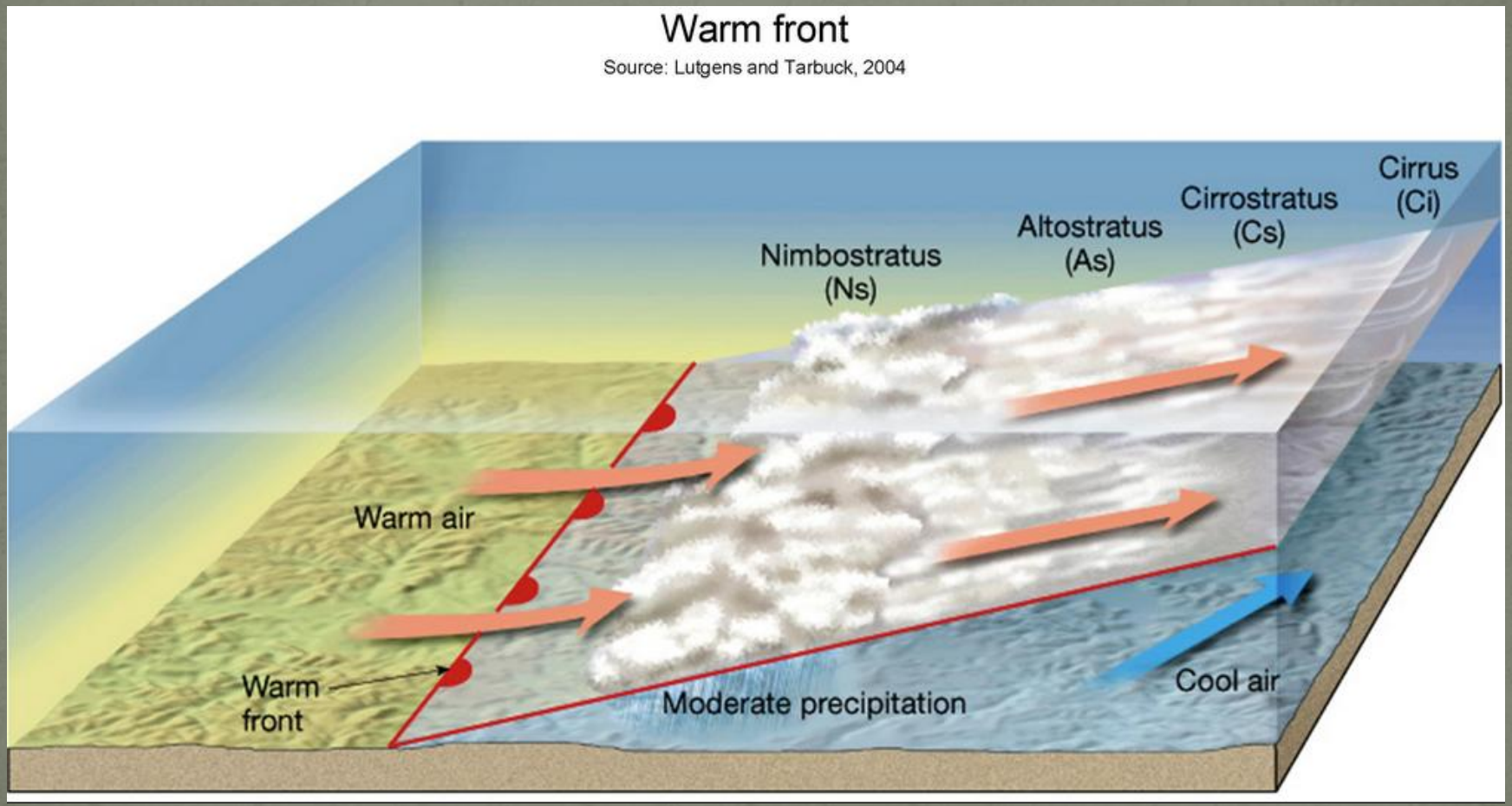


METAR	KSTL 0VC010	1950Z	21018KT 18/18	1SM A2960	–RA
METAR	KIND BKN020	1950Z	16012KT 15/15	3SM A2973	RA
METAR	KCMH 0VC060	1950Z	13018KT 14/10	6SM A2990	HZ
METAR	KPIT SCT150	1950Z	13012KT 12/01	10SM A3002	

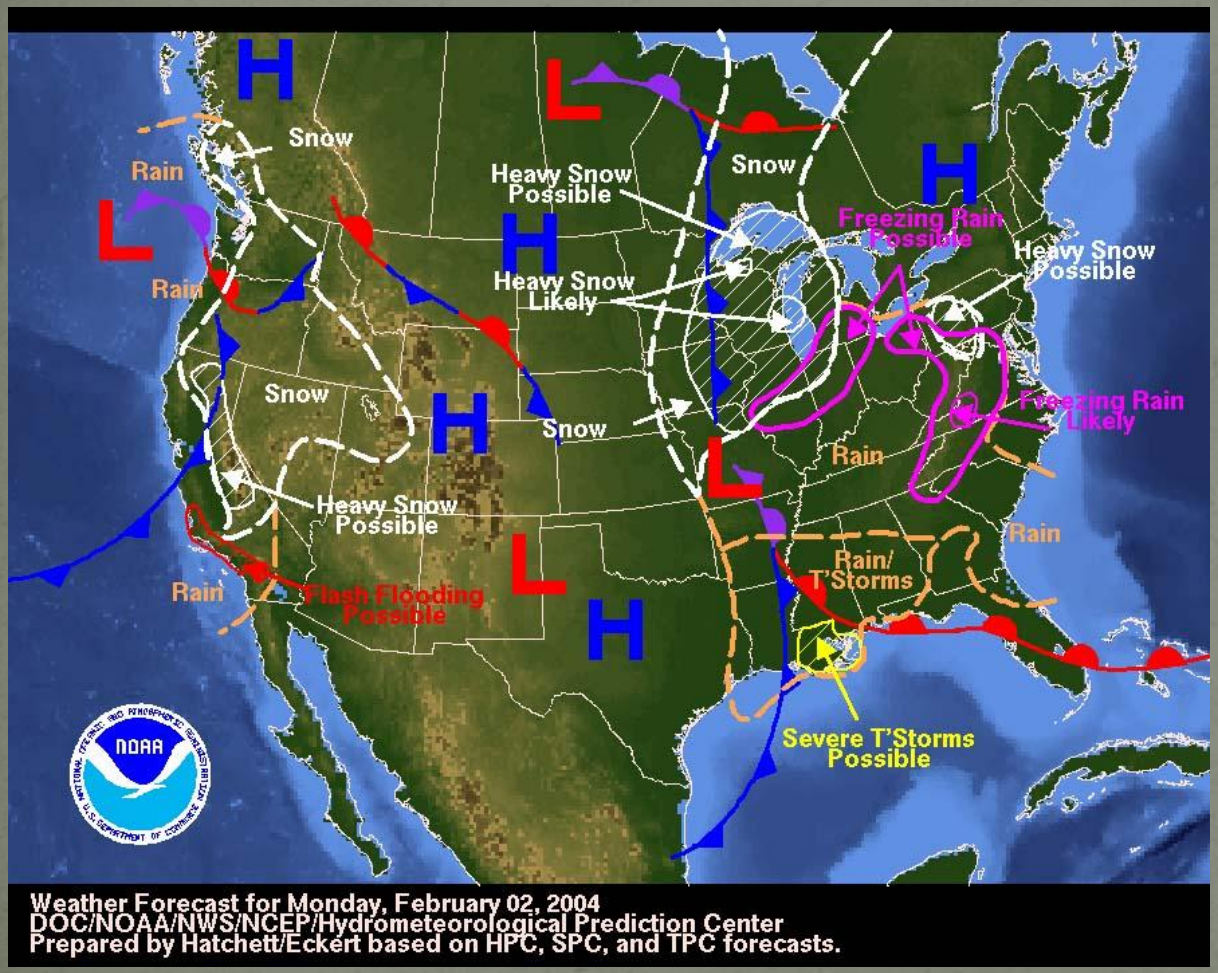
Cold fronts cause heavy rain, thunderstorms, or snow. They move fast, so the storms don't last long.

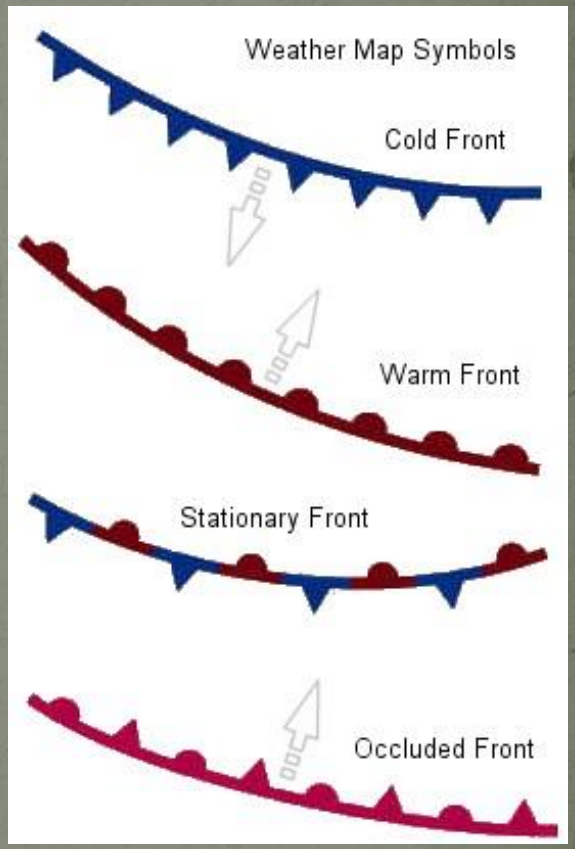


Warm fronts form when warm air moves over cold air. They produce rain or snow that can last for hours.

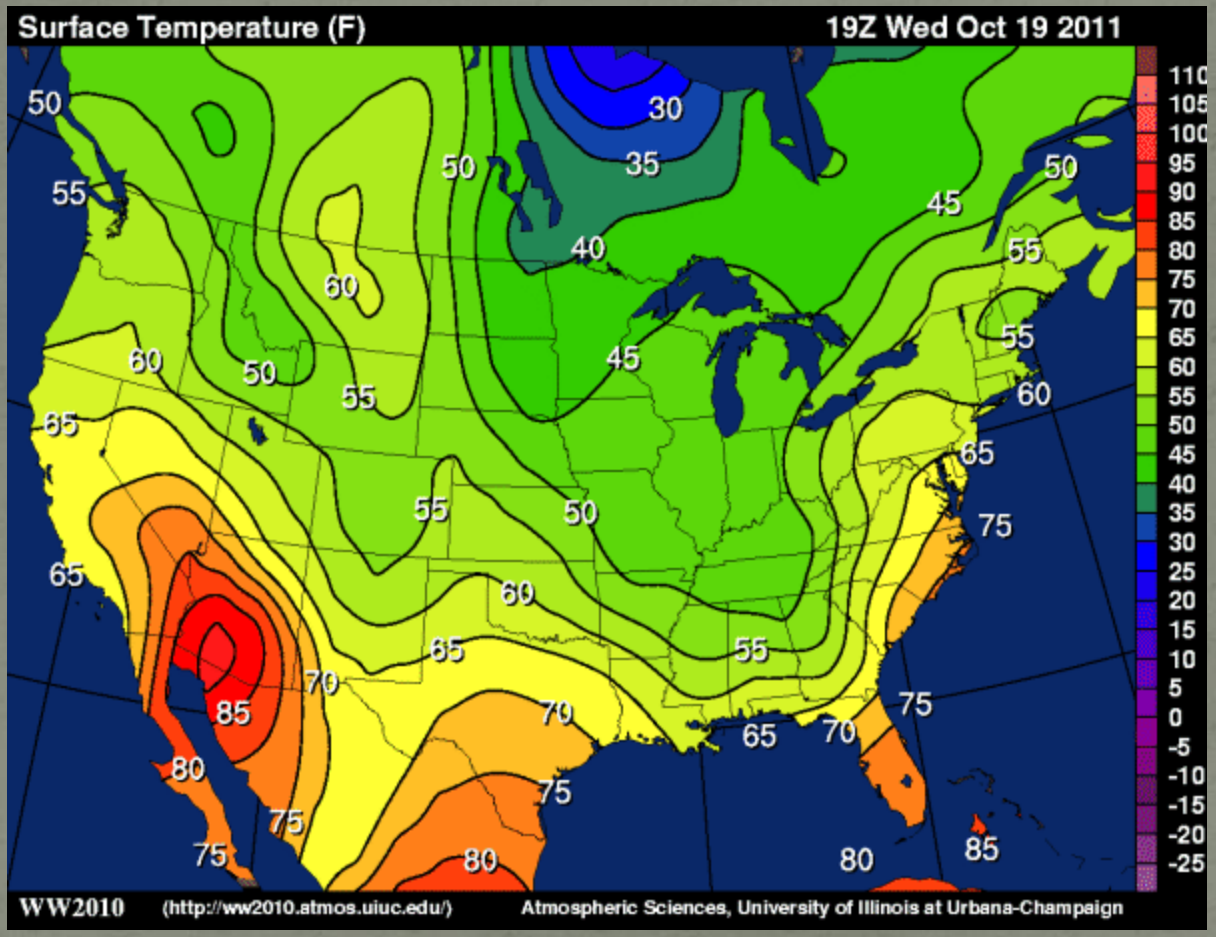


Four types of fronts





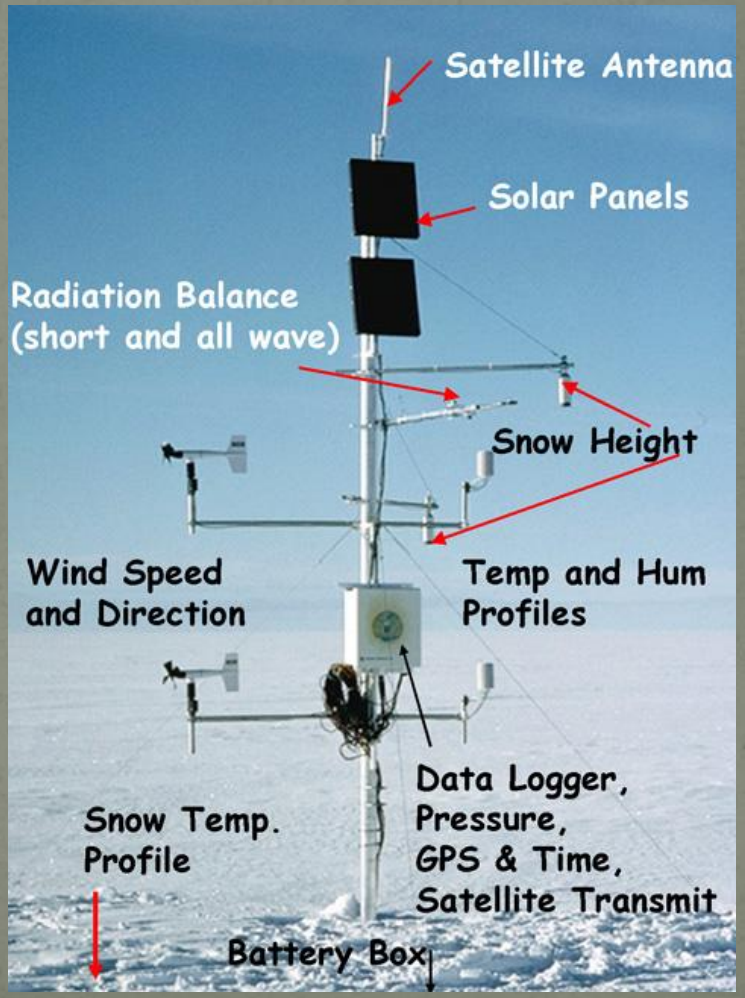
Weather Maps



Weather Maps

The information on a weather map is collected from different weather stations.

Doppler Radar



climate: the pattern of weather in an area over time