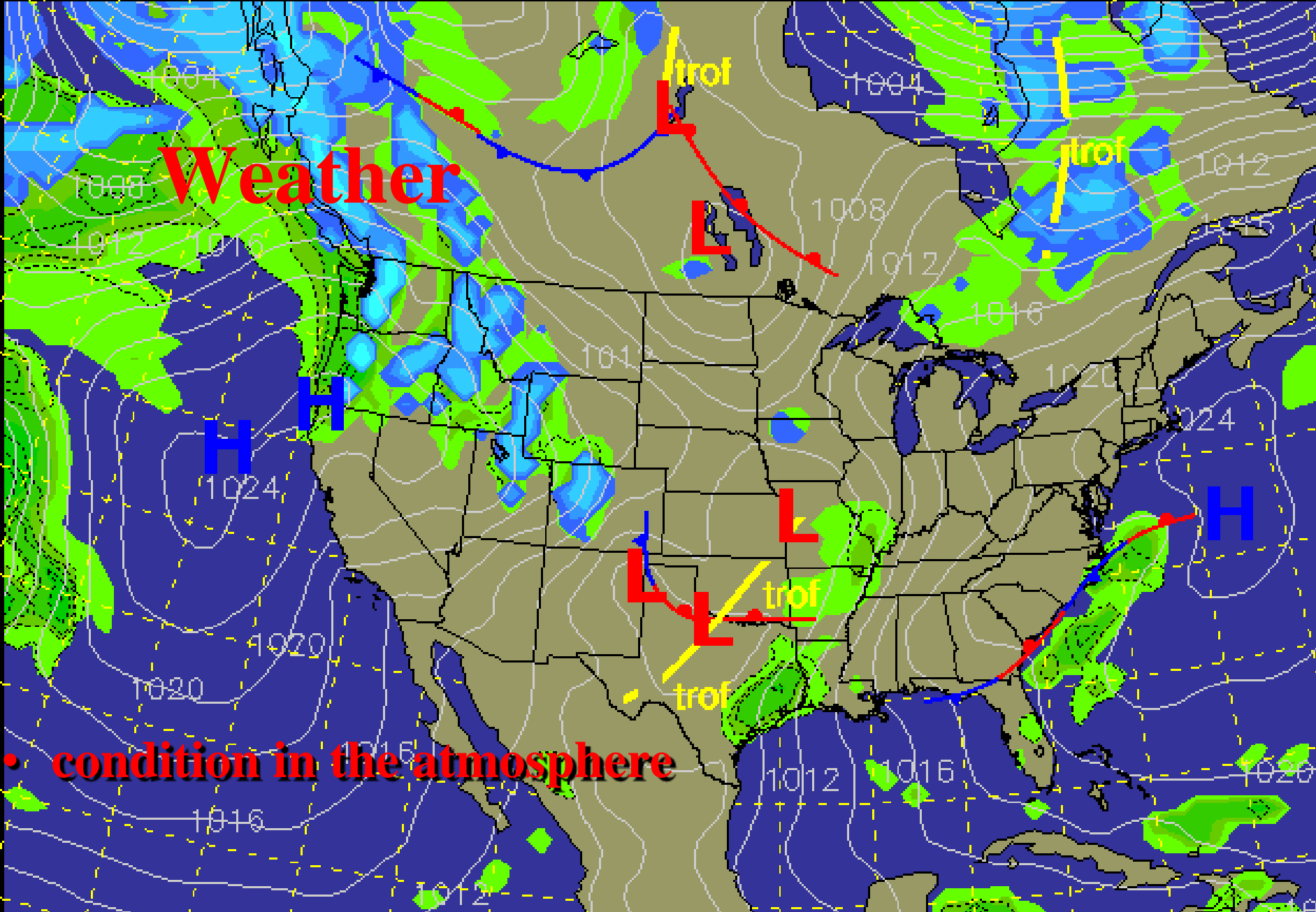


Weather



• condition in the atmosphere

Measurements of Weather

- Temperature
- Pressure
- Humidity - amount of water in the air
 - Relative humidity - water vapor in the air compared to how much it can hold
 - Measured with a wet and dry bulb thermometer (psychrometer)
 - Dew point - point where air becomes saturated and condensation occurs

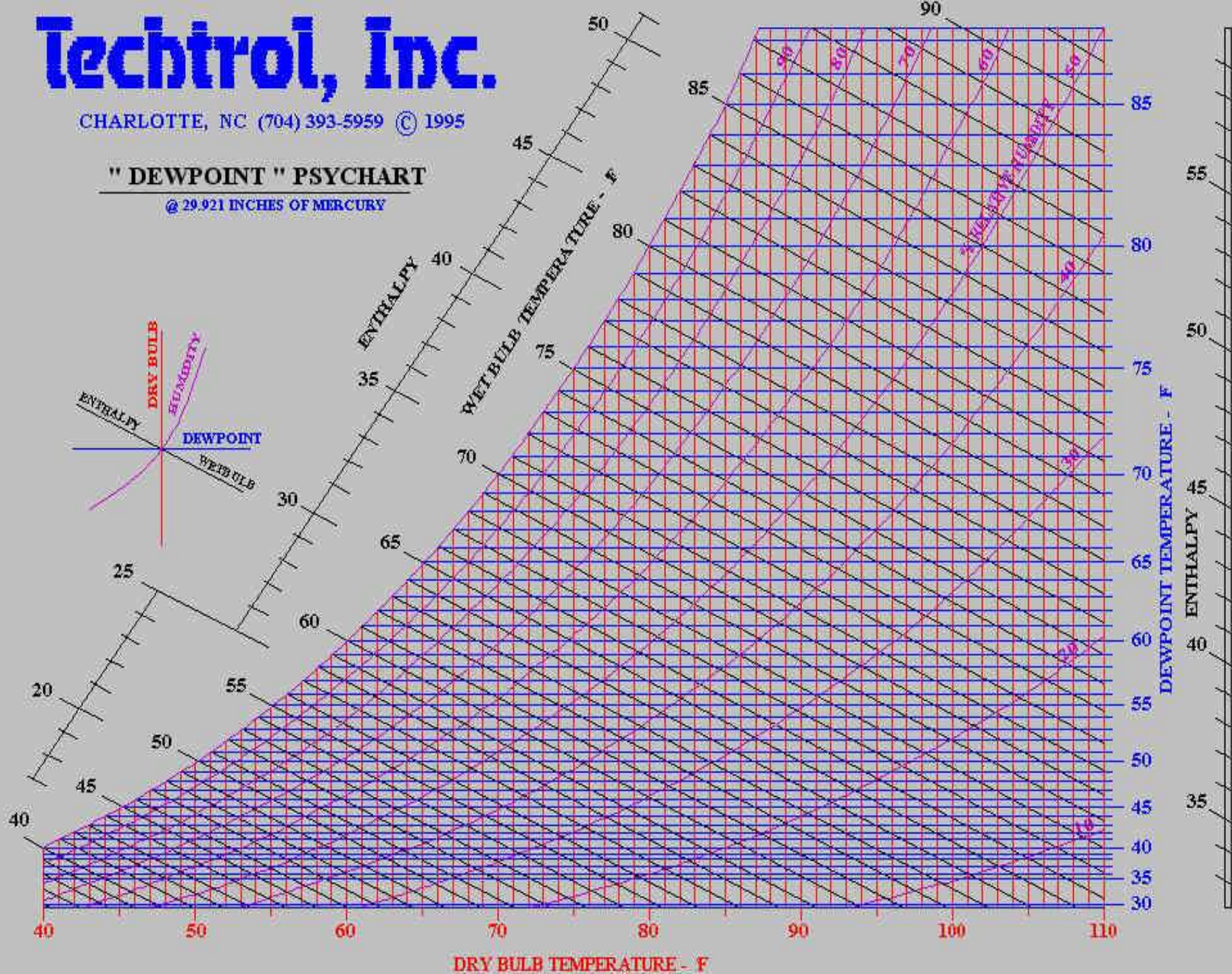


Techtrol, Inc.

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" DEWPOINT " PSYCHART

@ 29.921 INCHES OF MERCURY



Cloud formation

- Formed when rising air cools and reaches dew point
- Little drops of water form around nuclei (particles, smoke or dust)

Cloud Classification

- Shape
 - Stratus – layered clouds
 - Cumulus – puffy
 - Cirrus – wispy
- Height Figure 15-15 page 426
 - Cirro – above 6000 m
 - Alto – between 2000m & 6000m
 - Strato – below 2000m
- Rain capacity
 - Nimbo – means rain

Common types of clouds in the troposphere



Cirrocumulus
(mackerel sky)
above 18,000 feet



Cirrus
above 18,000 feet



Cumulonimbus
from near the ground
to above 50,000 feet

Altostratus
6,000 to 20,000 feet



Altostratus
6,000-20,000 feet



Cumulus
below 6,000 feet



Stratocumulus
below 6,000 feet



Stratus
below 6,000 feet







8 7 2003



Precipitation – water falling from clouds

- Rain
- Snow
- Sleet
- Hail

Weather Patterns

Air mass – air with same properties as the surface it formed over

- Cold dry
- Cool moist
- Warm moist
- Hot dry
- Terms such as polar, marine, tropical, and arid are used to refer to these air masses

B. Pressure and Weather

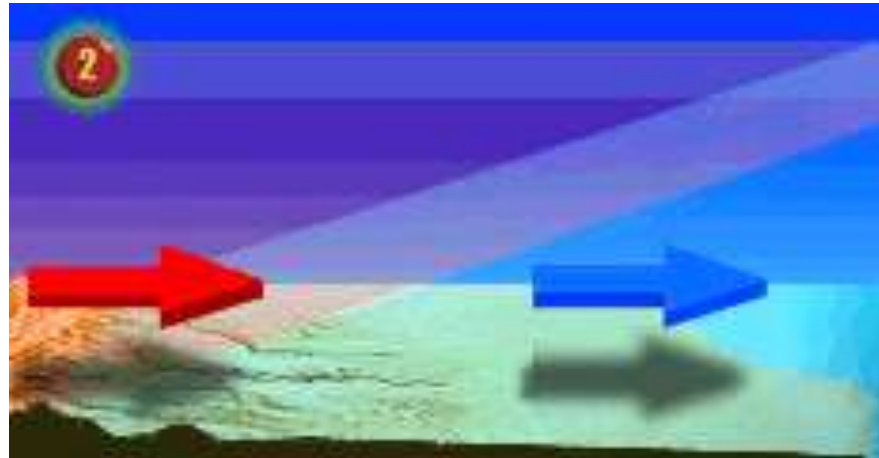
- Low – air moves counter clockwise around a Low pressure
- High – moves clockwise around a high pressure system

Fronts – boundary between two different air masses

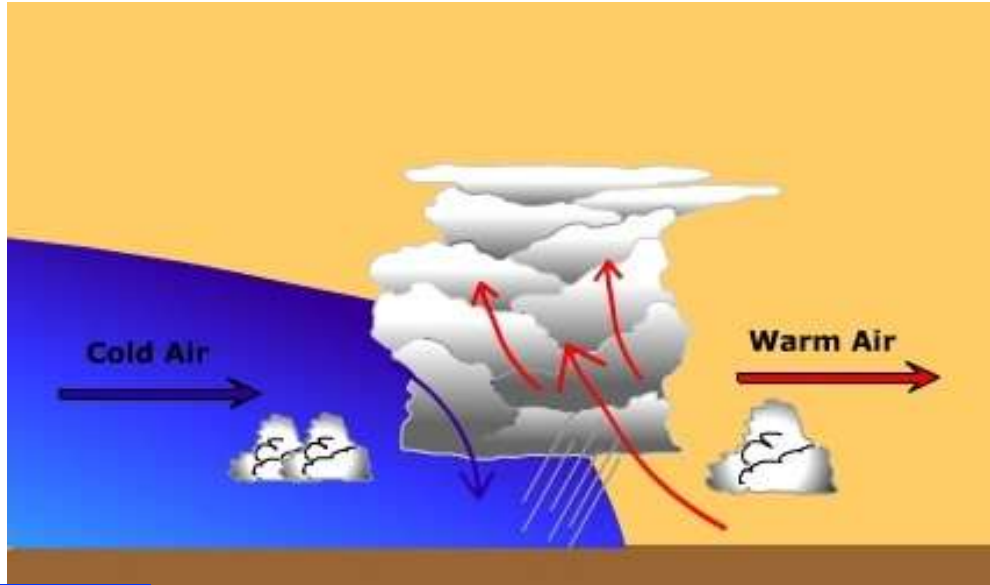
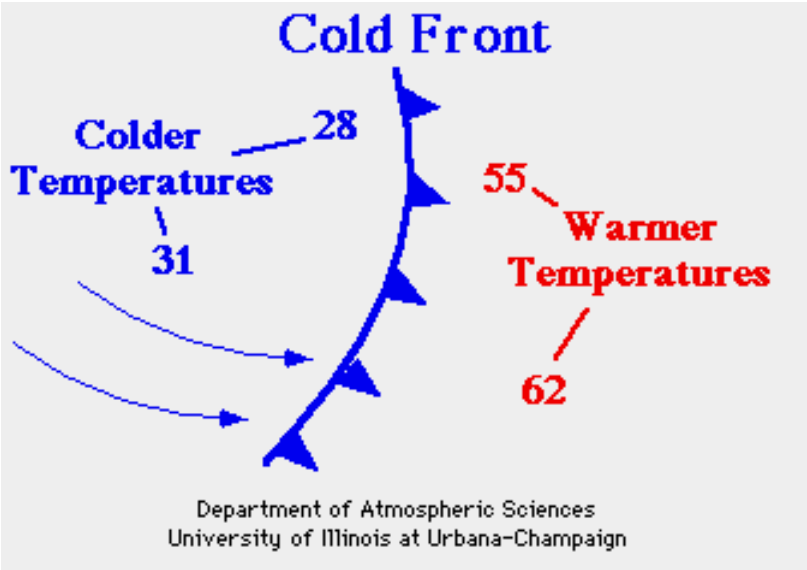
- Move out from a High pressure move into a Low pressure area

2. Four types of fronts

- Warm front – When a less dense warm air mass slides over a departing cold air mass. Precipitation occurs over a wide band



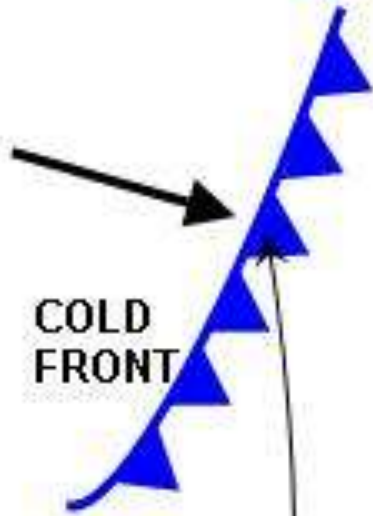
- Cold front – A cold air mass pushes under a warm air mass and forces the warm air aloft along a steep front. This causes a narrow band of violent storms.



TOP VIEW

LOW
PRESSURE
CENTER

WARM
FRONT



COLD
FRONT

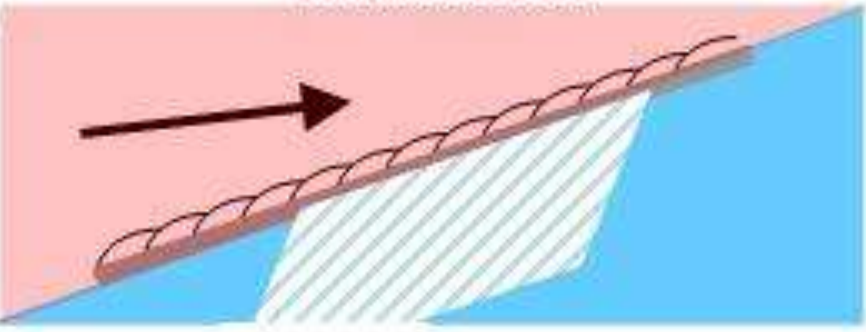


WIND FLOW

COLD FRONT

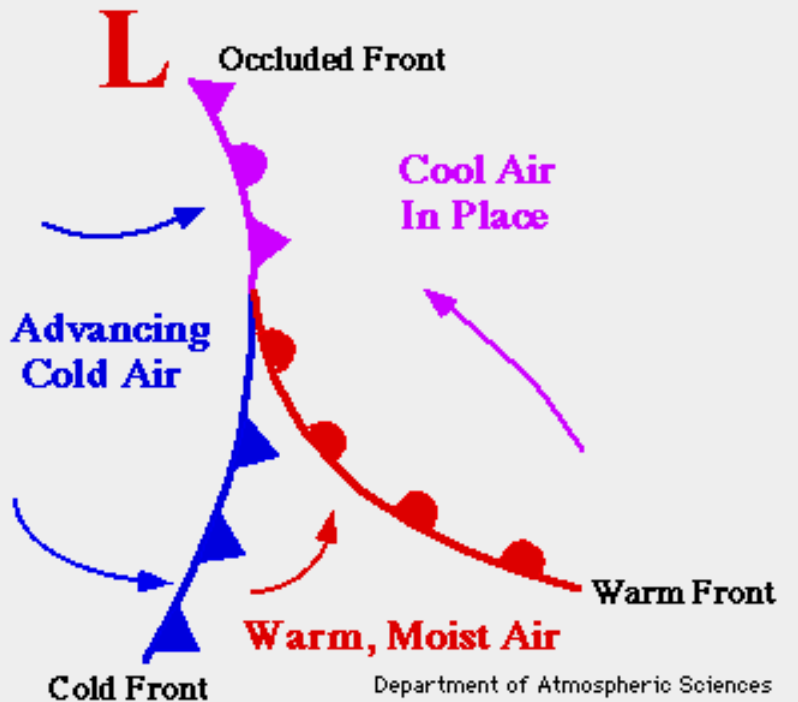
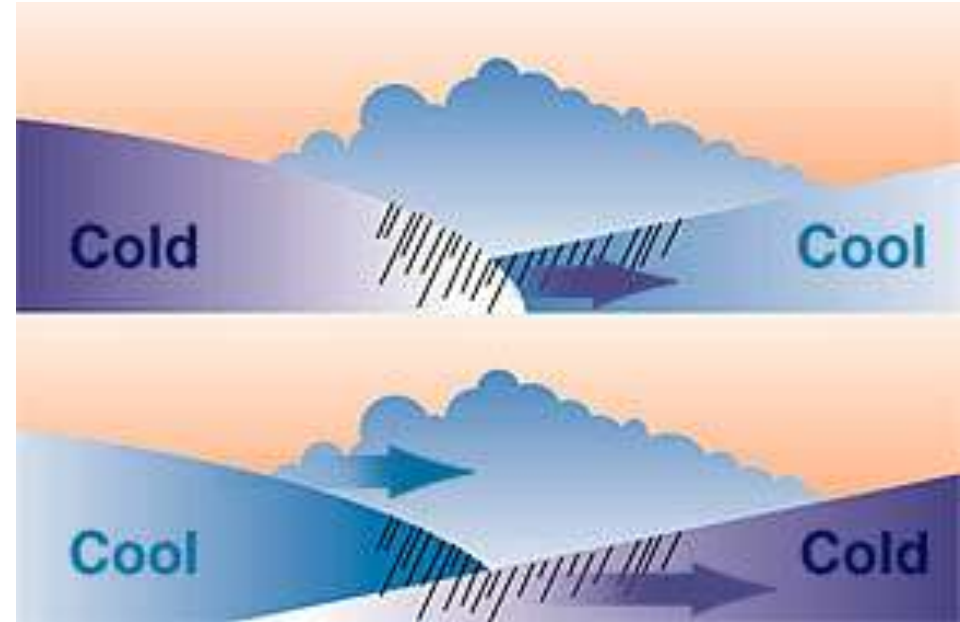


WARM FRONT

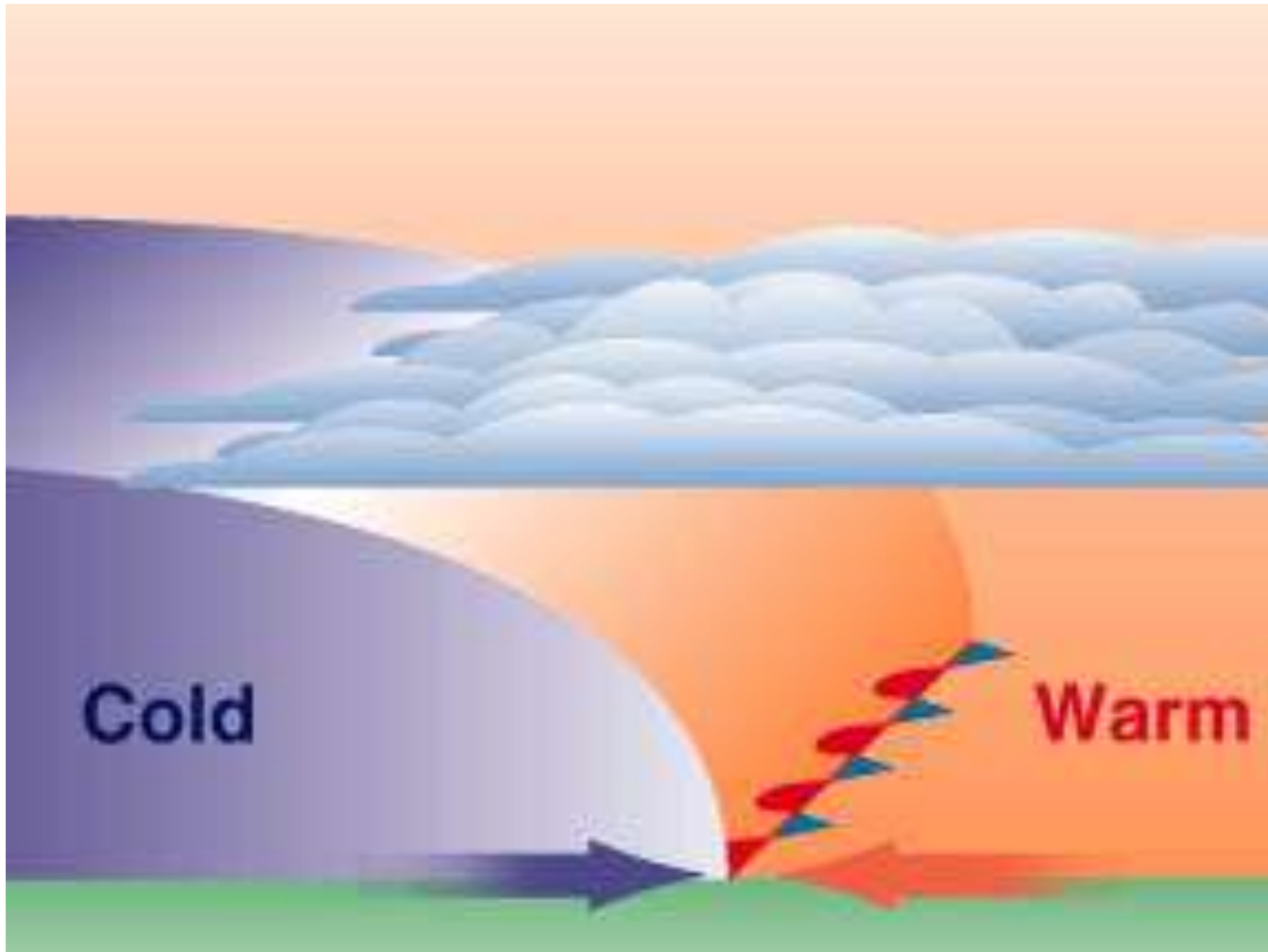


SIDE VIEWS

- Occluded – results from two cool air masses merging and forcing warmer air between them to rise. Strong winds and heavy precipitation may occur.



- **Stationary** – occurs when pressure differences cause a warm front or a cold front to stop moving. A stationary front may remain in the same place for days.

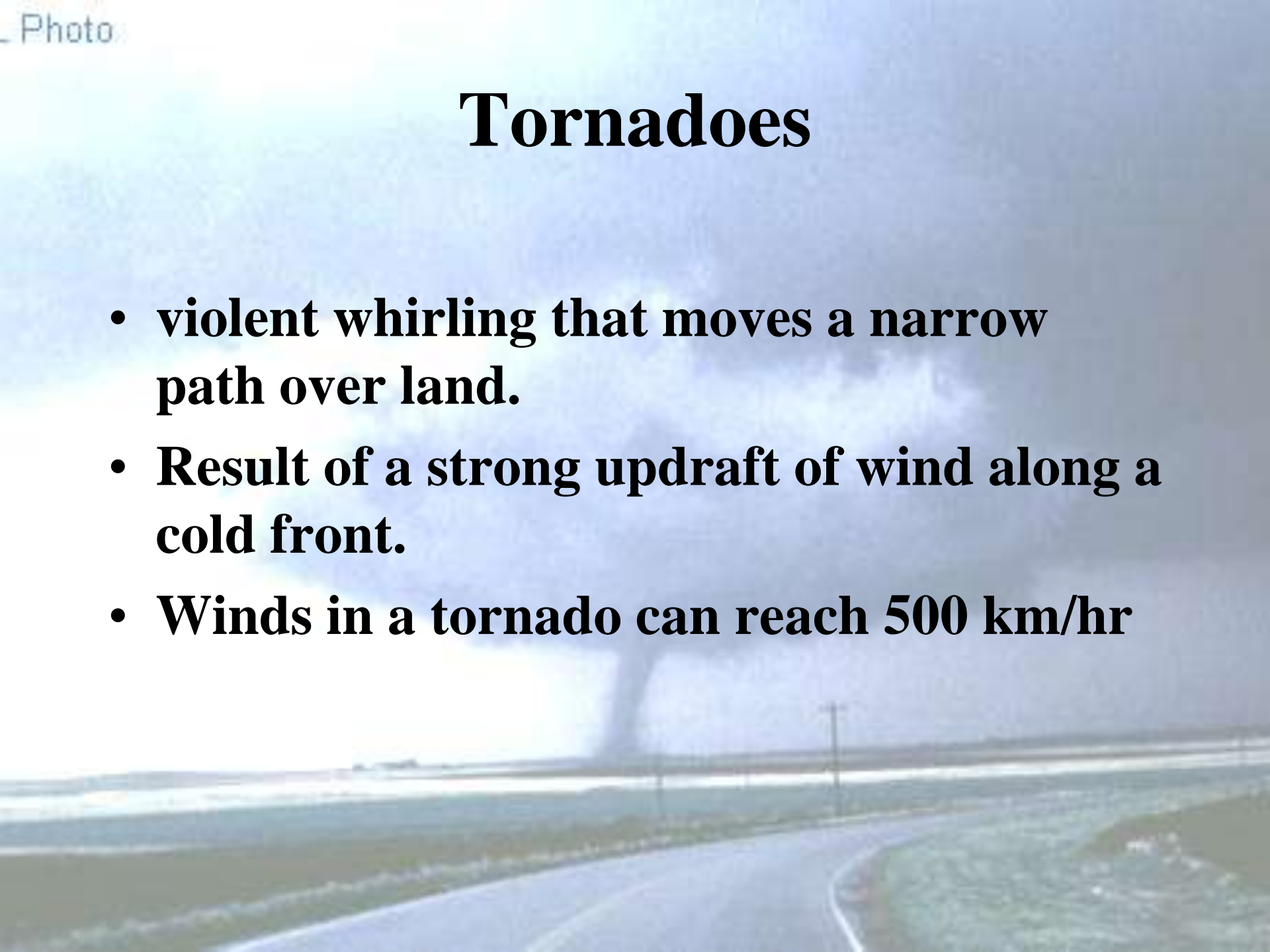


Severe Weather

- **Thunder storms – Warm moist air moves up quickly along a cold air mass**
- **Lightning –**
 - Quick uplift of air cause an imbalance in charge
 - A discharge results.
- **Thunder is the sound that we here as a result of lightening quickly heating the air**
- 3. **Hail – Warm moist air rising quickly and cooling very quickly**

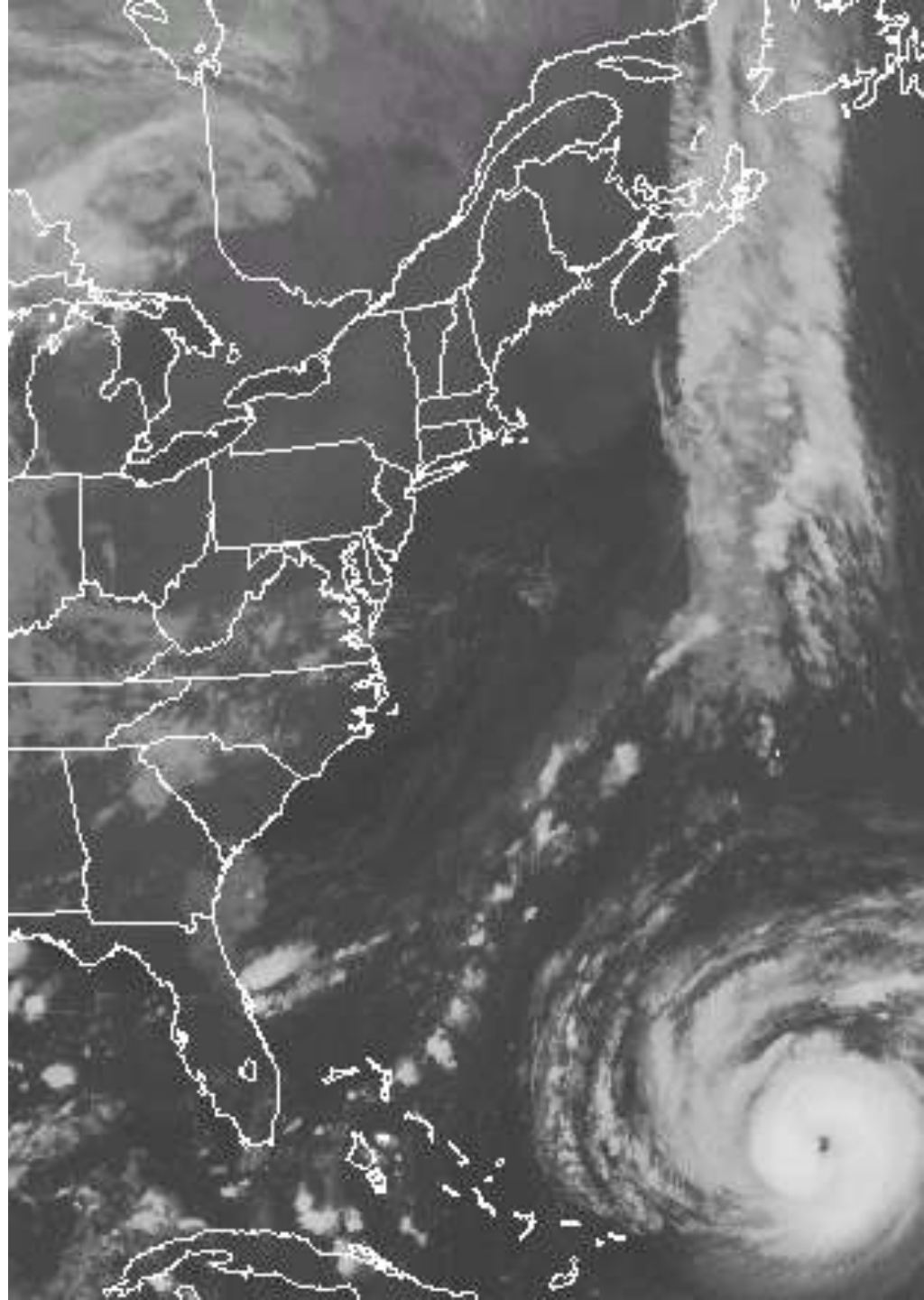
Tornadoes

- **violent whirling that moves a narrow path over land.**
- **Result of a strong updraft of wind along a cold front.**
- **Winds in a tornado can reach 500 km/hr**



Hurricanes

- are large swirling low-pressure systems that form over tropical oceans.



Blizzards



Forecasting Weather

- Weather Observations
- Meteorologist – a person who studies the weather

Weather forecasts

- Weather Info
 - Station Model – shows symbols of information contained at station Figure 15-16
 - Isobars – are lines drawn on maps of equal atmospheric pressure
 - Isotherm – are lines drawn on maps of equal temperature
- Read page 444 & 445