Air Masses, Fronts and Storms
Cold, dry air mass

-46°C

-33°C • Winnipeg
-29°C • Sioux Falls
-23°C • Omaha
-18°C • Wichita
-15°C • Oklahoma City
-9°C • Dallas
-4°C • Houston
10°C • Tampico
Air masses

Maritime polar mP

Continental polar cP

Maritime polar mP

Maritime tropical mT

Continental tropical cT

Continental polar cP

Maritime tropical mT

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Lake Effect Snow belts

Map showing the Lake Effect Snow belts around Lake Ontario, Lake Michigan, and the Great Lakes region.
Maritime Polar Air Mass

- **cP**
  - Cold, dry, stable

- **Modified cP**
  - Cold, dry, stable

- **mP**
  - Cool, moist, unstable
Development of Mid-latitude Cyclone
Mid-latitude Cyclone

- Cold
- Cold
- Warm

Diagram showing the movement of cold and warm air masses in a mid-latitude cyclone.
May 22, 2006 IR map

- Link to water vapor animation at right

http://www.goes.noaa.gov/WCIR3.html

http://www.goes.noaa.gov/GSSLOOPS/w cvs.html
Cumulus clouds
Tornado features

Suction vortex

Left side boundary
Path of tornado center
Tornado center
Right side boundary
Suction swath or band of debris deposit
Spinning along horizontal axis

Stronger winds

Weaker winds

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Tornado development—begins to go vertical with updraft.
Tornado development—vertical cyclone

- Clouds overshoot top of thunderstorm
- Mesocyclone (3 to 10 km diameter)
- Tornado
- Air inflow

Anvil
Idealized view of a "classic" supercell, looking west.

http://www.spc.noaa.gov/faq/tornado/supercell.htm
Tornado damage -- pole
http://en.wikipedia.org/wiki/Microburst
Tropical cyclone: Hurricane Katrina—satellite image

http://en.wikipedia.org/wiki/Hurricane_Katrina
After Camille storm surge—1969.