Air Masses

Chapter 20.1

Air Mass: A large body of air.

- The moisture content and temperature of an air mass changes as it moves from one area to another.

TPS: Describe how the air mass changes as it moves south.

- Air masses are classified (named) by their temperature and where they formed.

<u>Temperature</u>

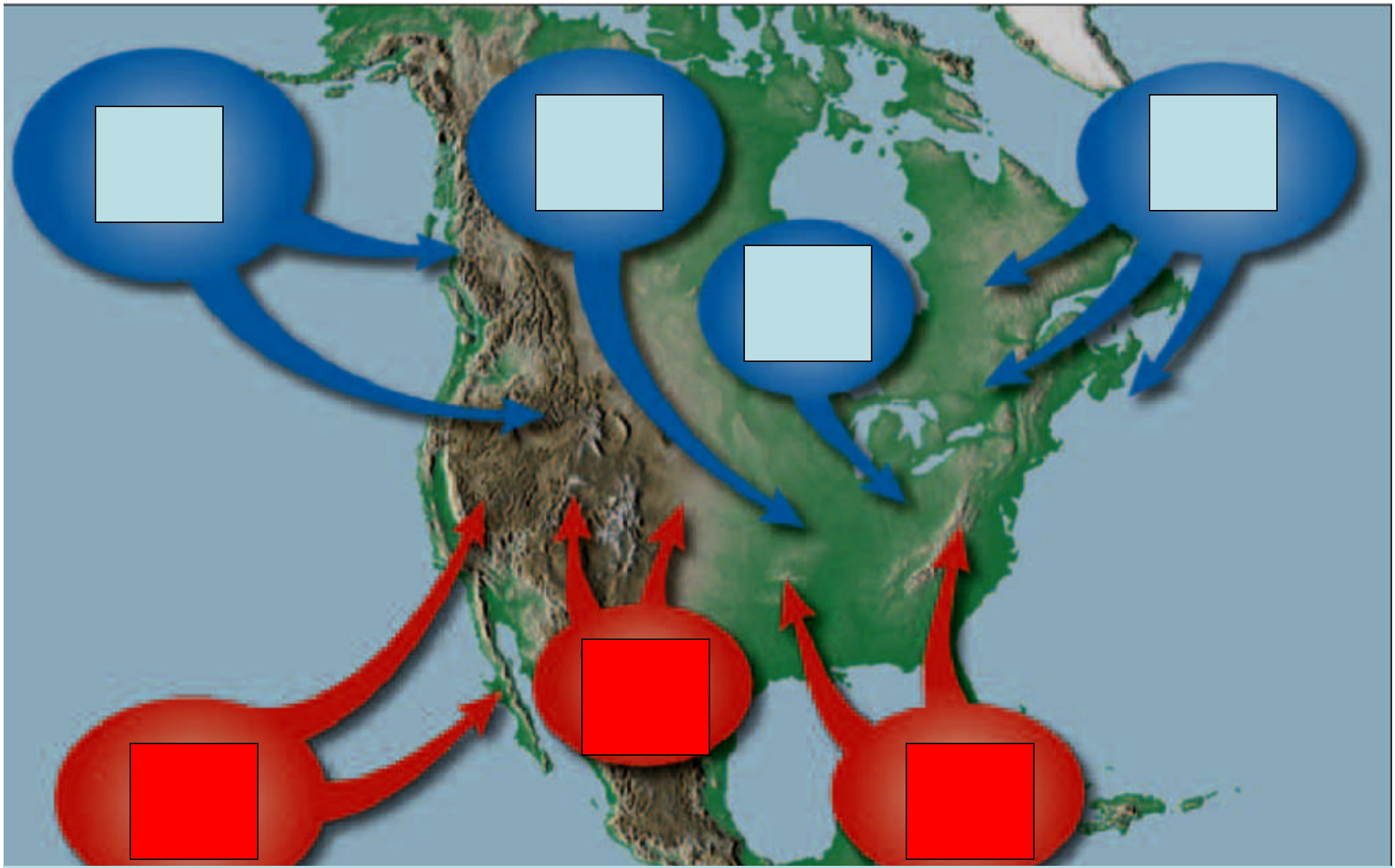
Polar = cold

Tropical = warm

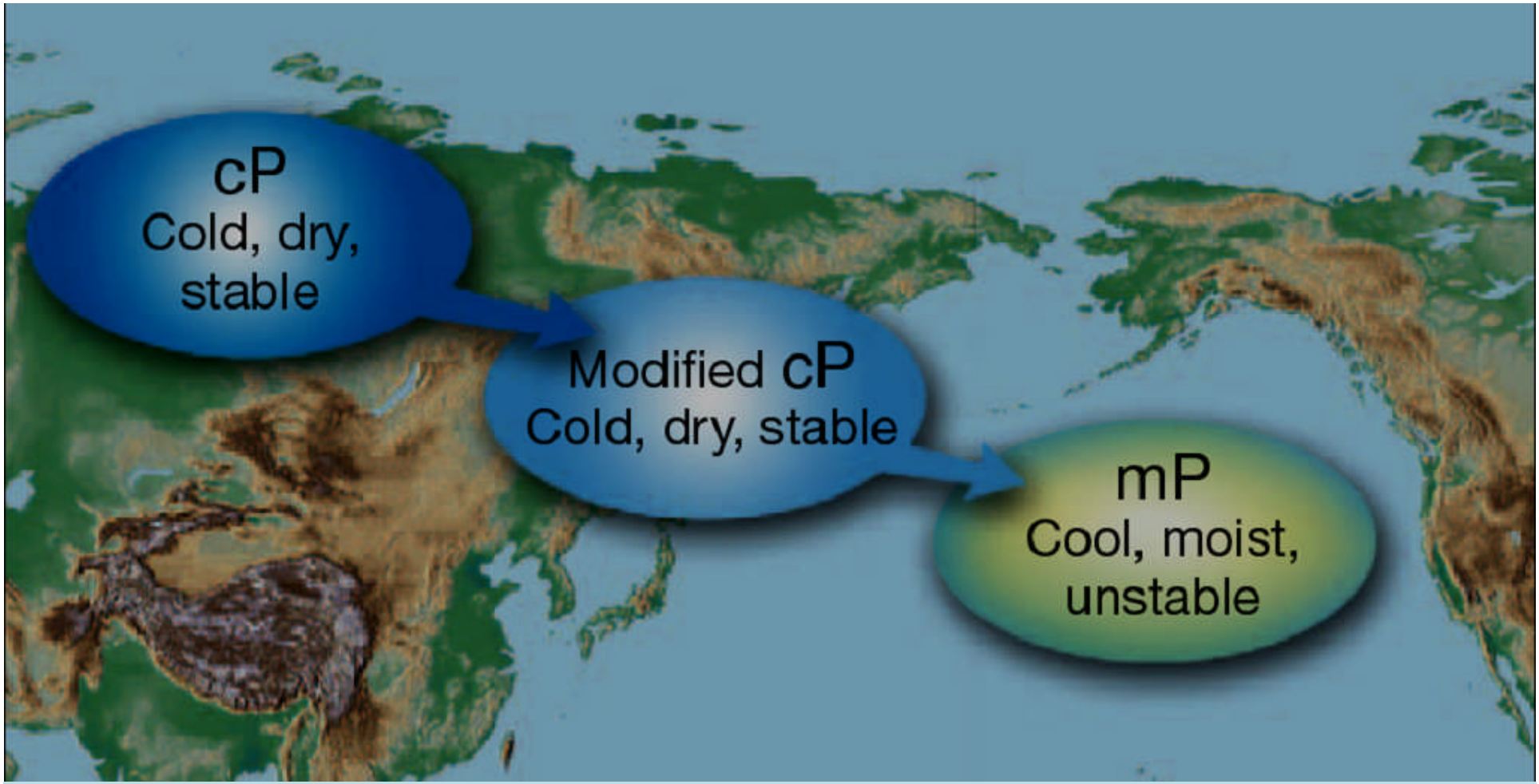
<u>Location</u>

Maritime = over ocean

Continental = over land



TPS: Why do Continental Tropical (cT) air masses rarely affect the weather in North America.



The cool, wet weather of Northern CA is largely influenced by cold polar air masses which pick up moisture as they move over the Pacific Ocean.

Reviewing Concepts

1. What is an air mass?
2. What happens to an air mass when it moves over an area?
3. How are air masses classified?
4. Which air masses have the greatest impact on the weather in North America?
5. Why do cT air masses have the least influence?

TPS

- Explain which type of air mass could offer relief from a scorching summer in the mid-western US.
- Explain which type of air mass would bring warmer weather late in the fall in the northern U.S.
- How can cP air masses be responsible for the heavy snow on the eastern shores of the Great Lakes?

TPS

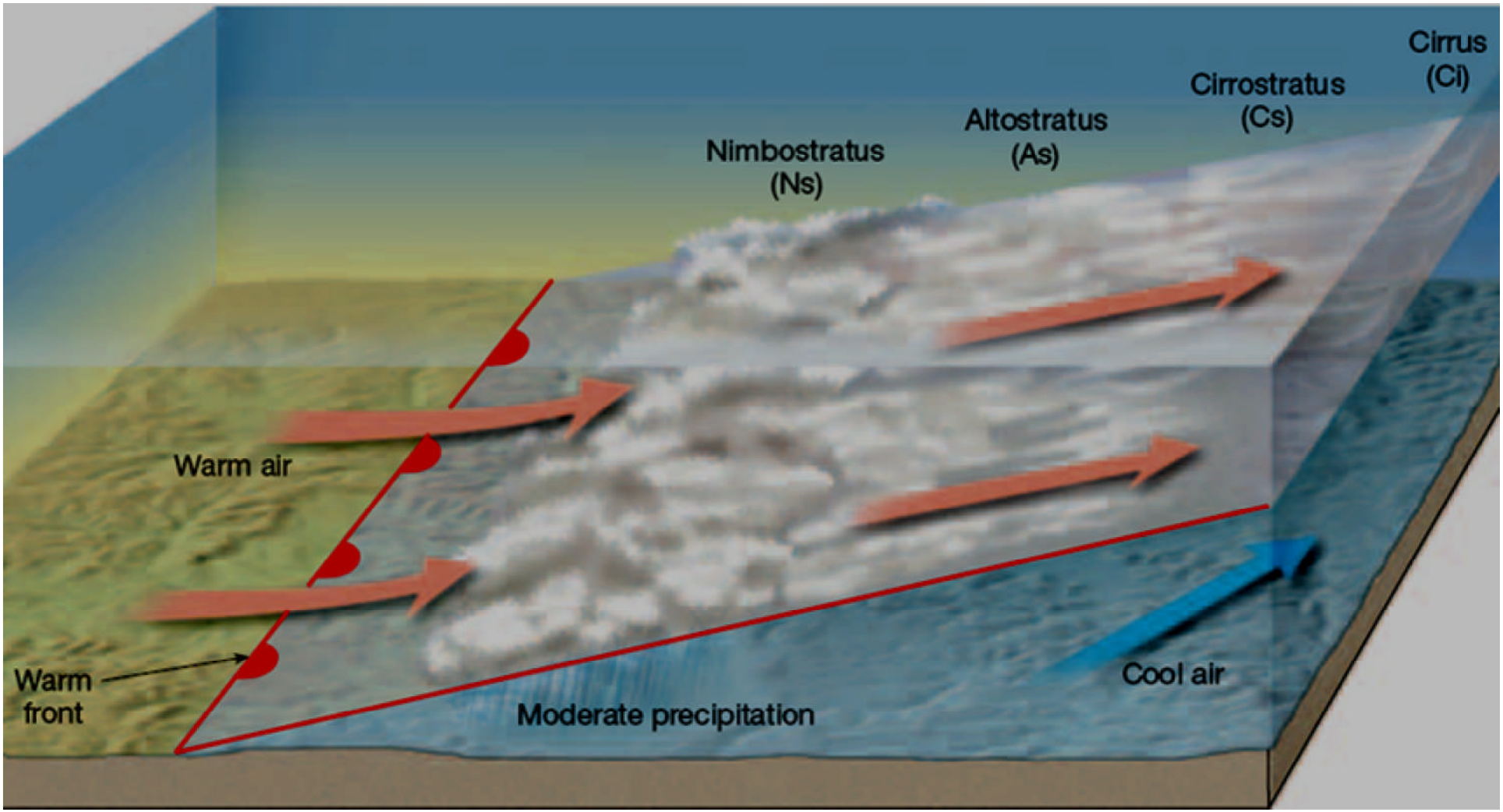
- What type of air mass has the greatest influence on the weather in Florida? How does this explain why there are many hurricanes in Florida?
- What kind of weather would you expect if a mT air mass moves into Northern California in November?

Fronts

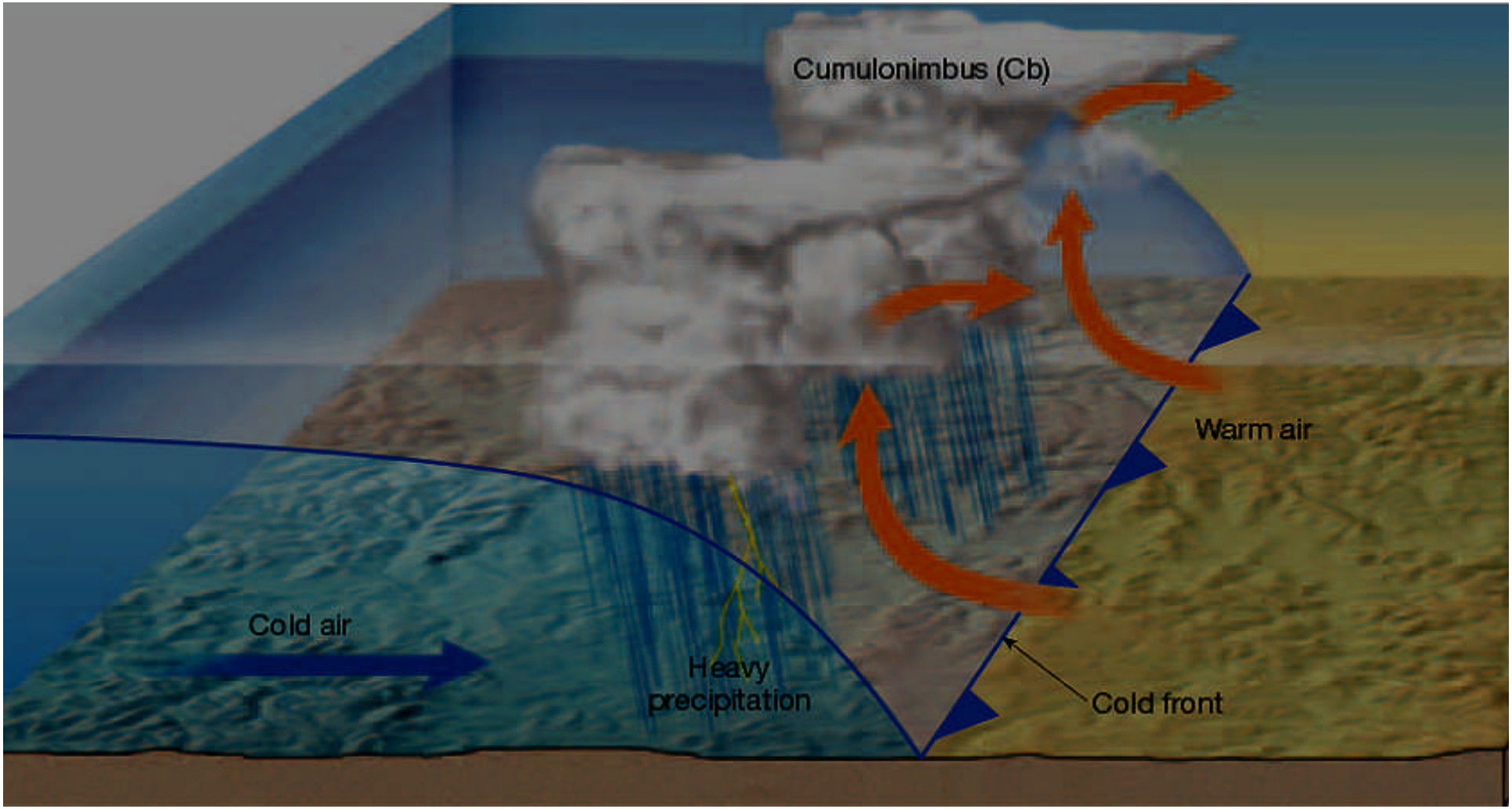
Chapter 20.2

Front: the boundary between two air masses.

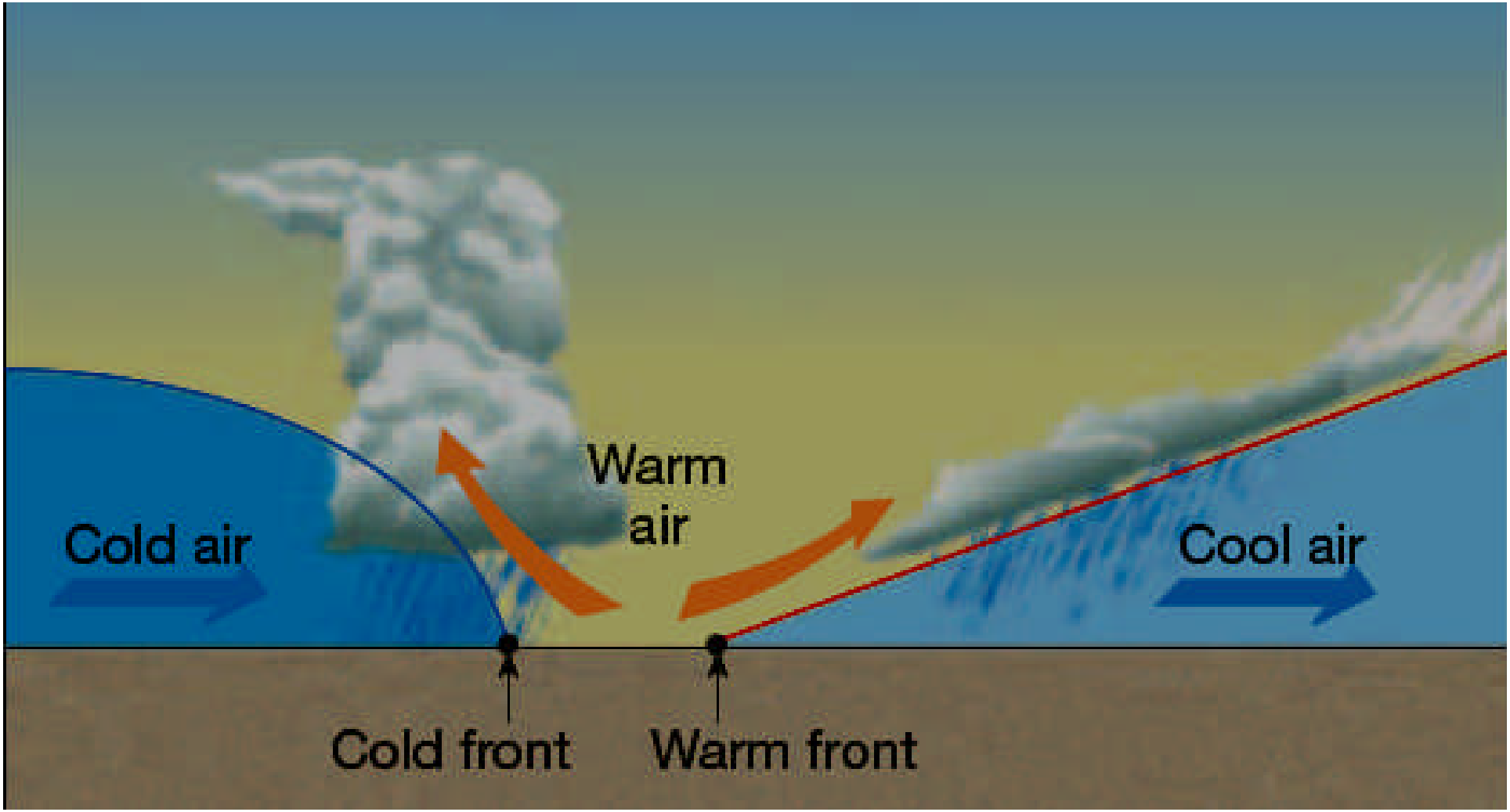
Warm Front: a front where warm air moves into an area that had colder air.

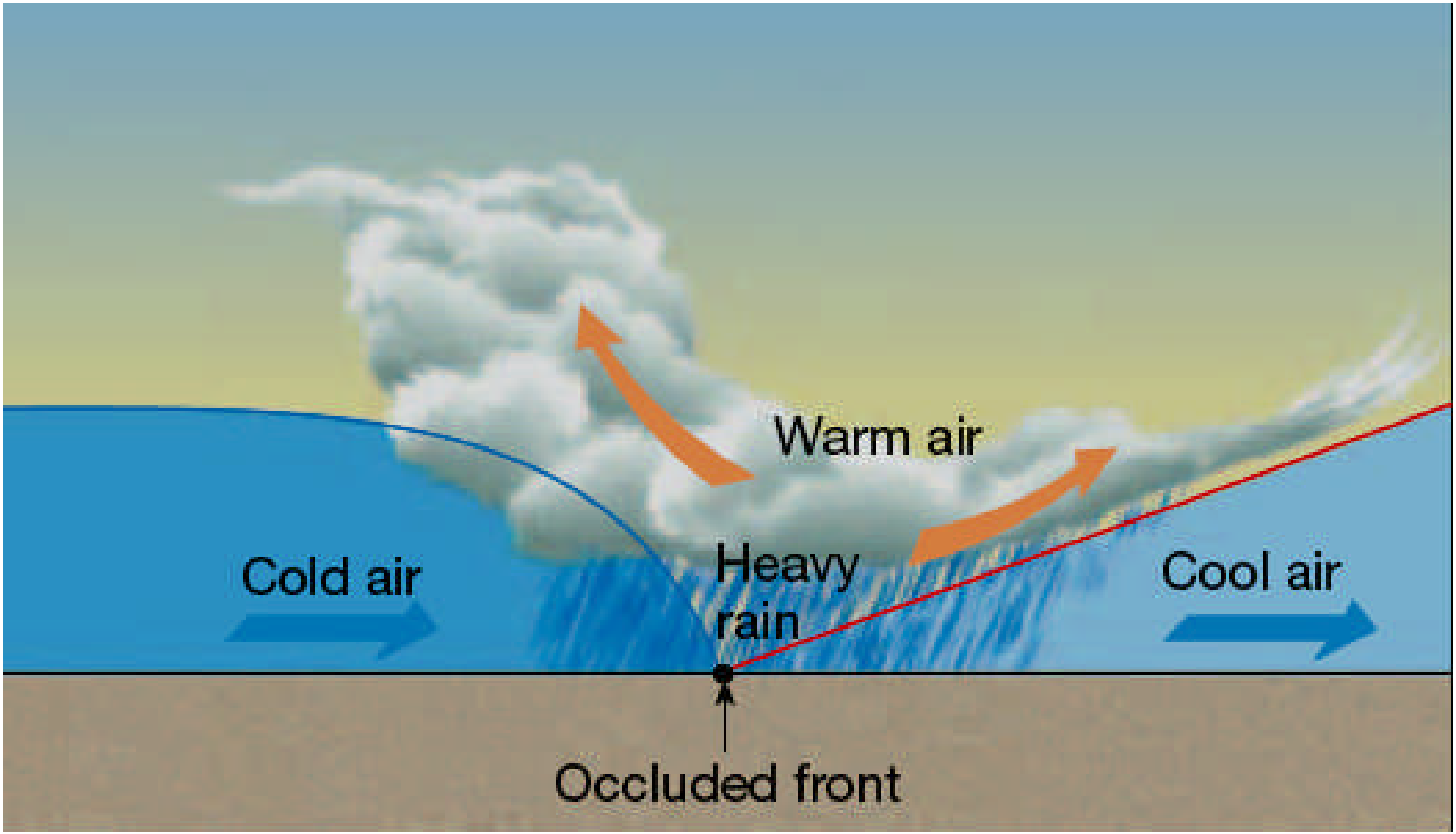


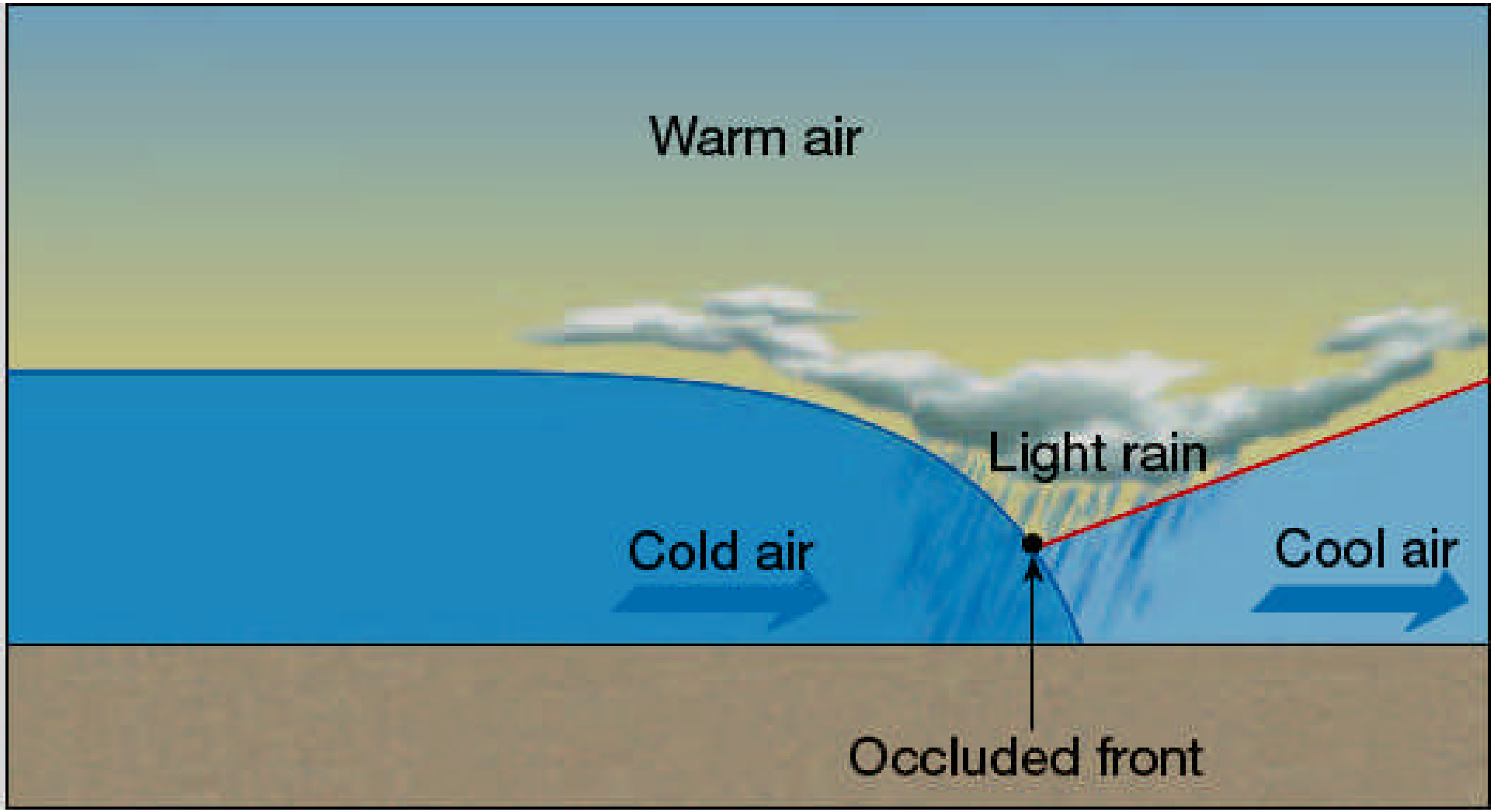
Cold Front: a front where cold, dense air moves into an area occupied by warm air.



Occluded Front: where a cold front overtakes a warm front.

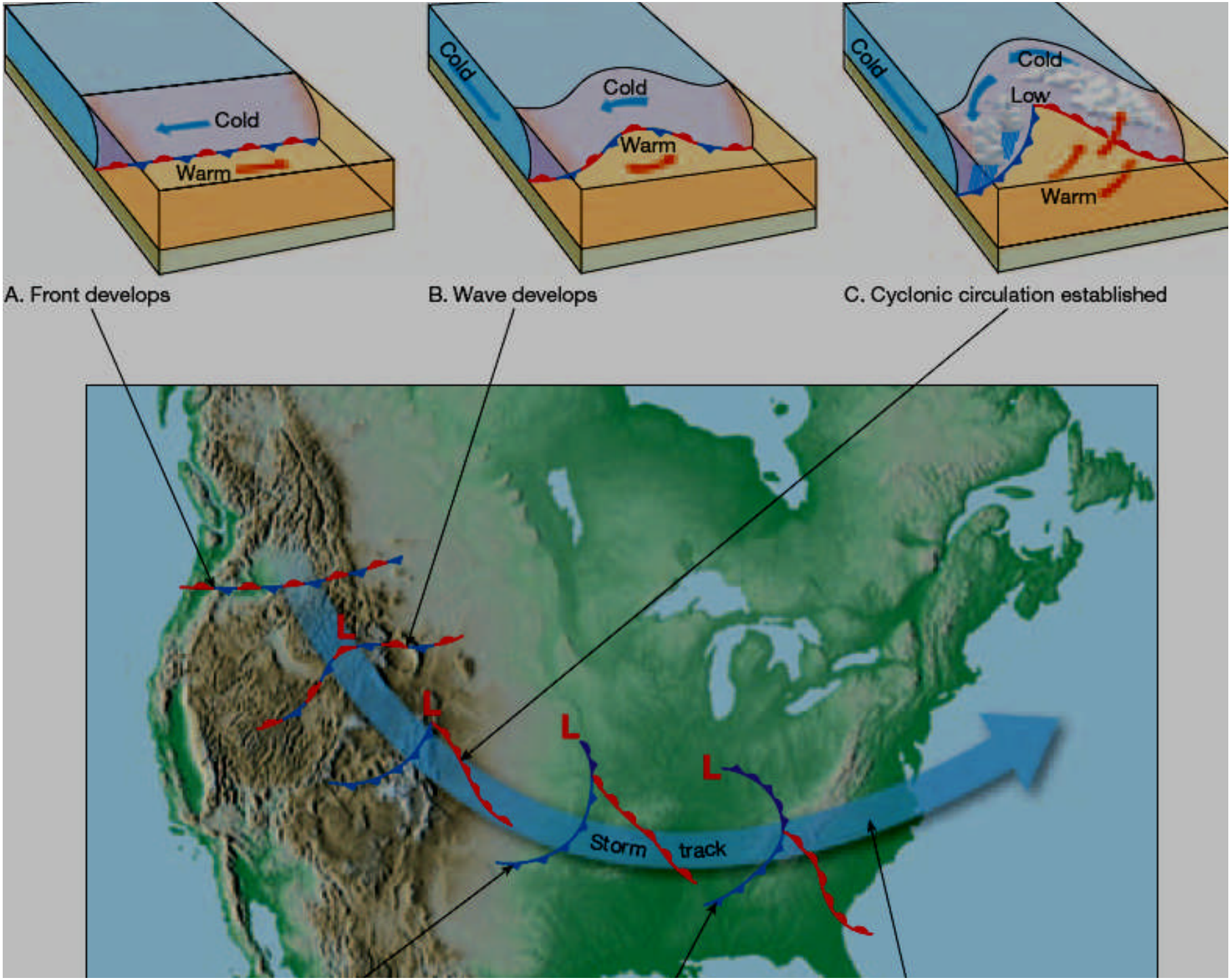


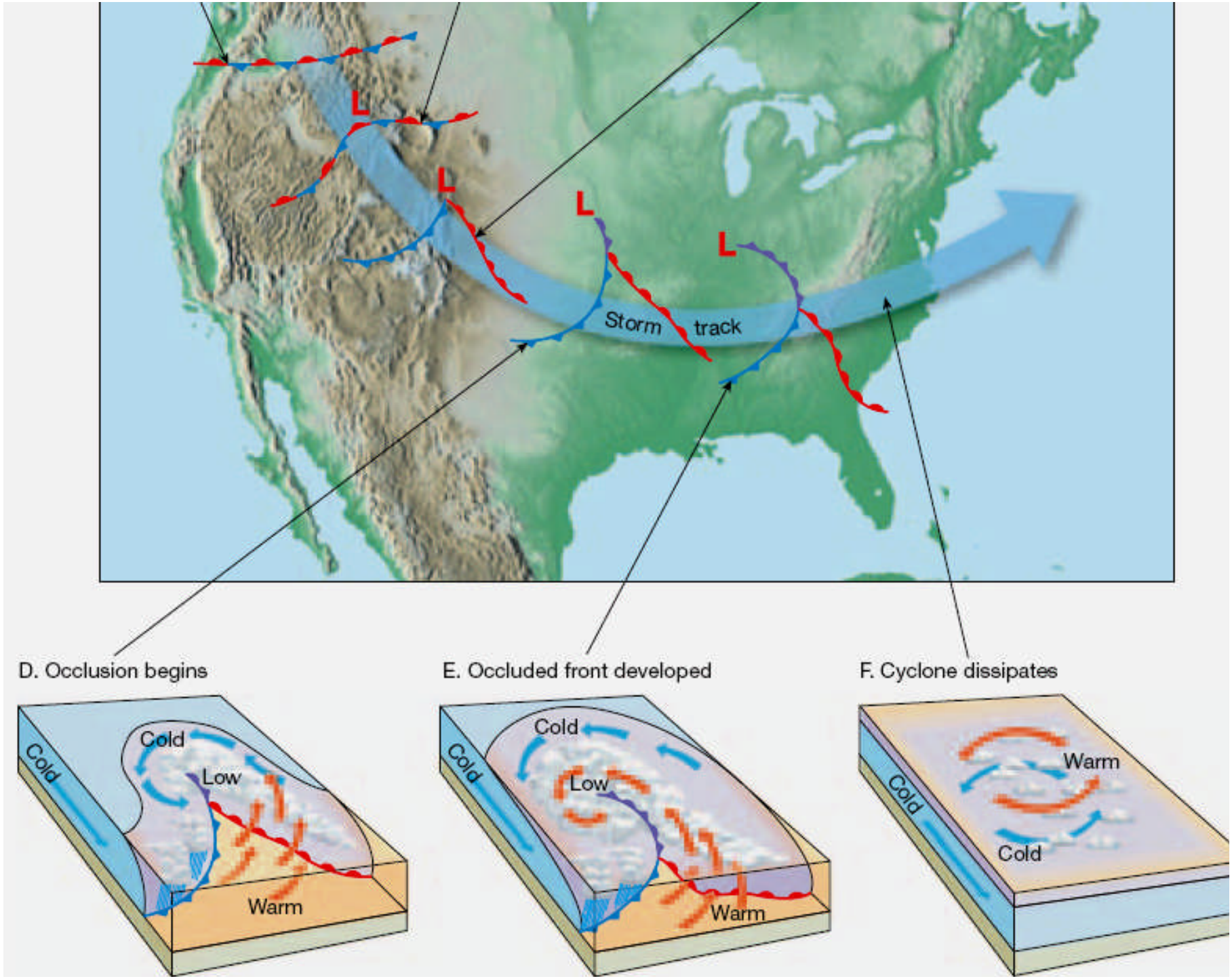

Warm air
Cold air
Heavy
rain
Cool air
Occluded front

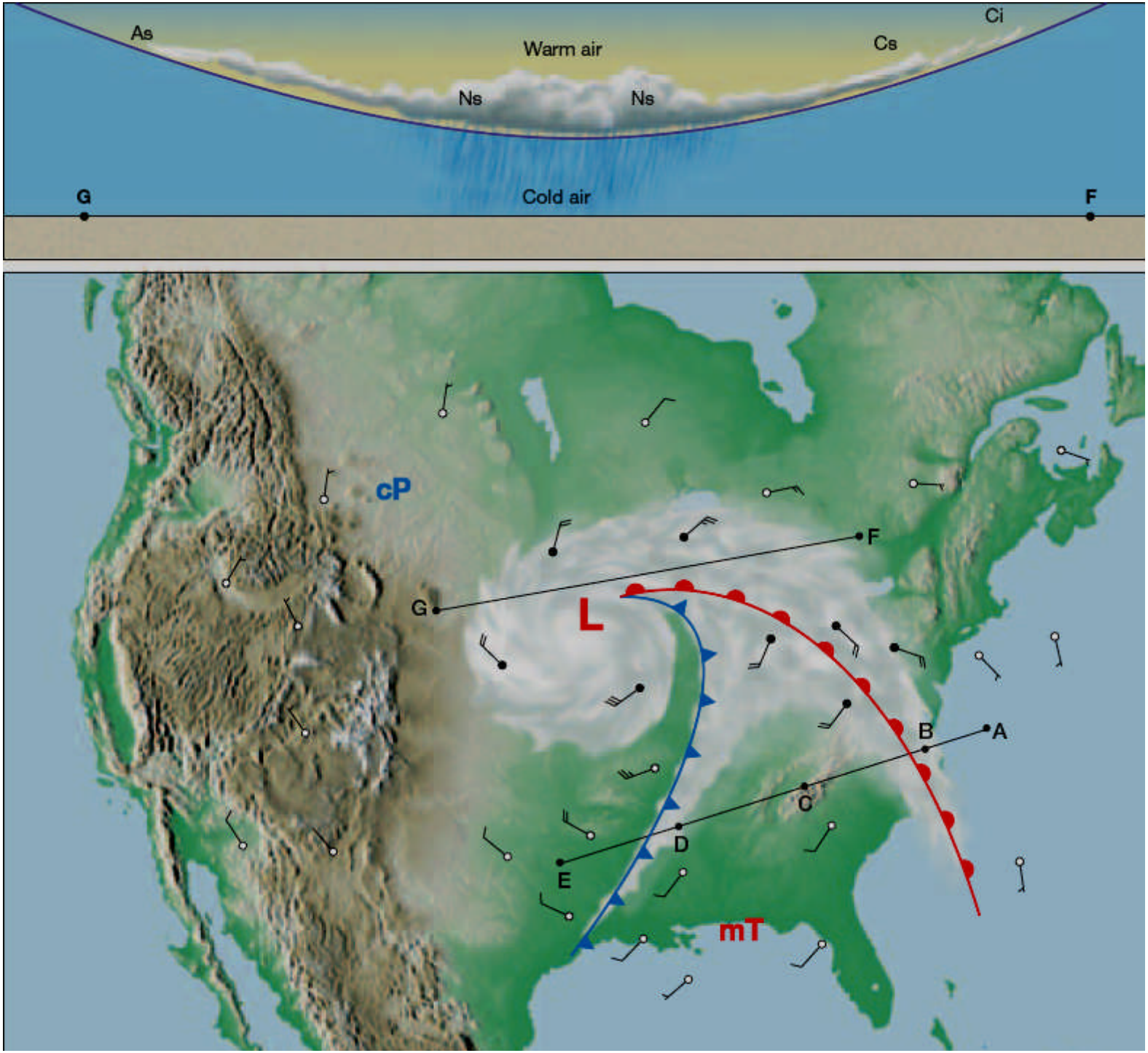

Warm air
Light rain
Cold air
Cool air
Occluded front

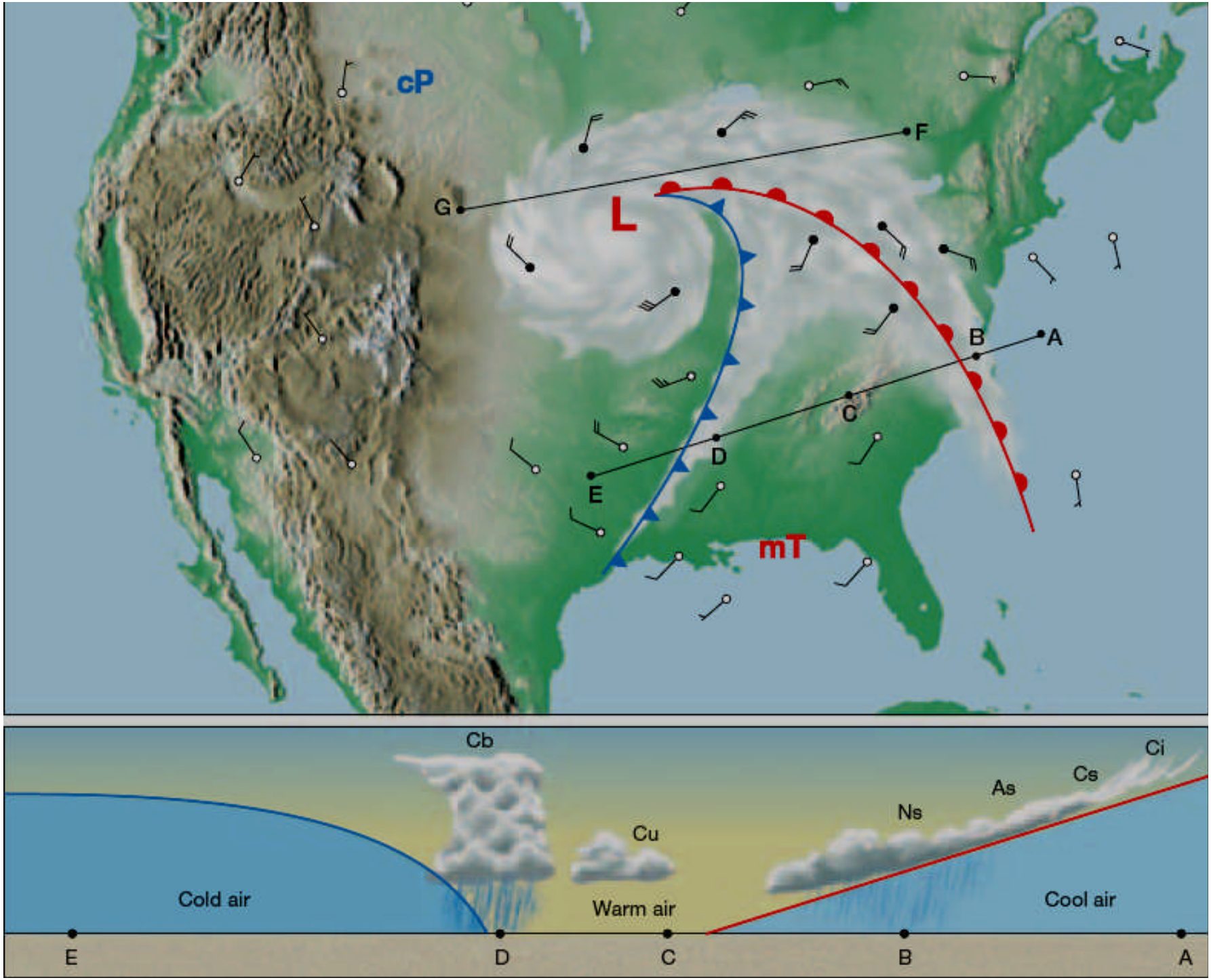
II. Middle Latitude Cyclones

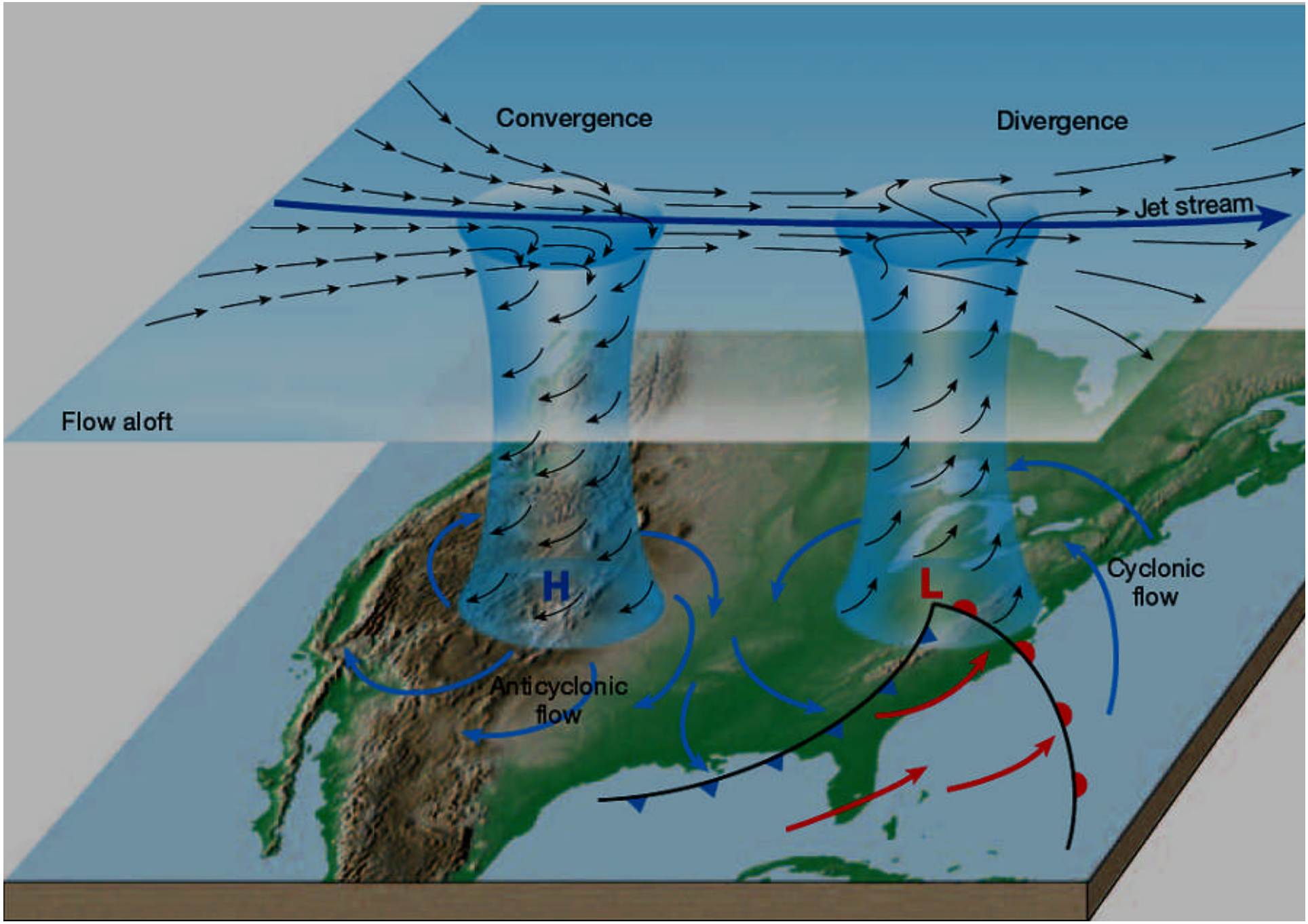
- Large centers of low pressure that produce the majority of storms in N. America.


Cold
Warm
A. Front develops
Cold
Cold
Warm
B. Wave develops
Cold
Cold
Low
Warm
C. Cyclonic circulation established
L
L
L
L
Storm track


L
L
L
L
Storm track
D. Occlusion begins
Cold
Low
Cold
Warm
E. Occluded front developed
Cold
Low
Cold
Warm
F. Cyclone dissipates
Warm
Cold
Cold


As
Warm air
Ci
Cs
Ns
Ns
G
Cold air
F
cP
F
G
L
B
A
C
D
E
mT


cP
L
mT
F
G
A
B
C
D
E
Cb
Cu
Ci
Cs
As
Ns
Cold air
Warm air
Cool air
E
D
C
B
A


Convergence
Divergence
Jet stream
Flow aloft
H
L
Cyclonic
flow
Anticyclonic
flow