

Warm-Up

Topic: Air Masses & Weather Fronts

1. What type of cloud is made mostly of ice crystals?
2. The average temperature last week was 50 F, is this an example of weather or climate?
3. What is the name for the dust particles required for water droplets to gather?

1. ¿Qué tipo de nube está compuesta principalmente de cristales de hielo?
2. La temperatura promedio la semana pasada fue 50 F, ¿es este un ejemplo de clima o clima?
3. ¿Cuál es el nombre para las partículas de polvo requeridas para que las gotitas de agua se junten?

Weather vs. Climate

Both explain atmospheric conditions & behaviors

Ambos explican las condiciones atmosféricas y los comportamientos

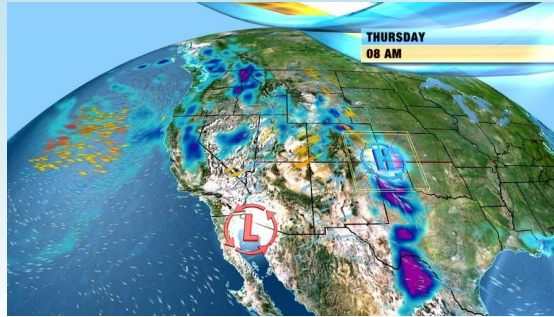
Difference? TIME FRAME

¿Diferencia? PERIODO DE TIEMPO

Weather

“Minutes-to-months”
(short term)

Ex: temperature,
humidity,
precipitation,
cloudiness, wind,
brightness, etc.



Tiempo

"Minutos a meses"
(término corto)

Ej: temperatura,
humedad,
precipitación,
nubosidad, viento,
brillo, etc.

Climate



Clima

Average, long-term pattern
(usually a particular location or
time period, generally over
30+ years)

averages of precipitation,
humidity, sunshine, and wind
speed

Patrón promedio a largo plazo
(generalmente un lugar o
período de tiempo en
particular, generalmente más
de 30 años o más)

Promedios de precipitación,
humedad, sol y velocidad del
viento

“Climate is what
you expect,
weather is what
you get!”



“El clima es lo
que esperamos,
el tiempo es lo
que hay!”

Which is it?

1. You're packing for a weekend on the coast...Do you look up weather or climate?
2. You're moving to Texas...Do you look up weather or climate?

1. Estás empacando un fin de semana en la costa ... ¿Buscas clima o clima?
2. Te estás mudando a Texas ... ¿Buscas clima o clima?

I. Air Masses

A. Immense body of air that is characterized by similar **temperatures** and amounts of **moisture** at any given **altitude**.

These **cause** weather.

A. Inmenso cuerpo de aire que se caracteriza por **temperaturas** y cantidades de **humedad** similares a cualquier **altitud** dada.

Estos **causan** clima.



Air Masses



B. Classified based on **temperature** AND **humidity**.

a. Temperature:

POLAR = cold

TROPICAL = warm

b. Humidity:

Maritime = ocean

Continental = land

Masas de aire

B. Clasificado según la **temperatura** y la **humedad**.

a. Temperatura:

POLAR = frío

TROPICAL = cálido

b. Humedad:

Marítimo = océano

Continental = tierra

How do you write AIR MASSES

C. Always put humidity first! (lowercase) then temperature (UPPERCASE)

C. ¡Siempre ponga la humedad primero! (minúscula) luego temperatura (MAYÚSCULAS)

ex. Maritime Polar = mP

Continental Polar = c _____

Maritime Tropical = _____ T

Continental Tropical = _____ _____

ex. Marítimo Polar = mP

Continental Polar = c _____

Marítimo Tropical = _____ T

Continental Tropical = _____ _____

How do you write AIR MASSES

Always put humidity first! (lowercase) then temperature (UPPERCASE)

Ex. Maritime Polar = mP

Continental Polar = c**P**

Maritime Tropical = **mT**

Continental Tropical = **cT**

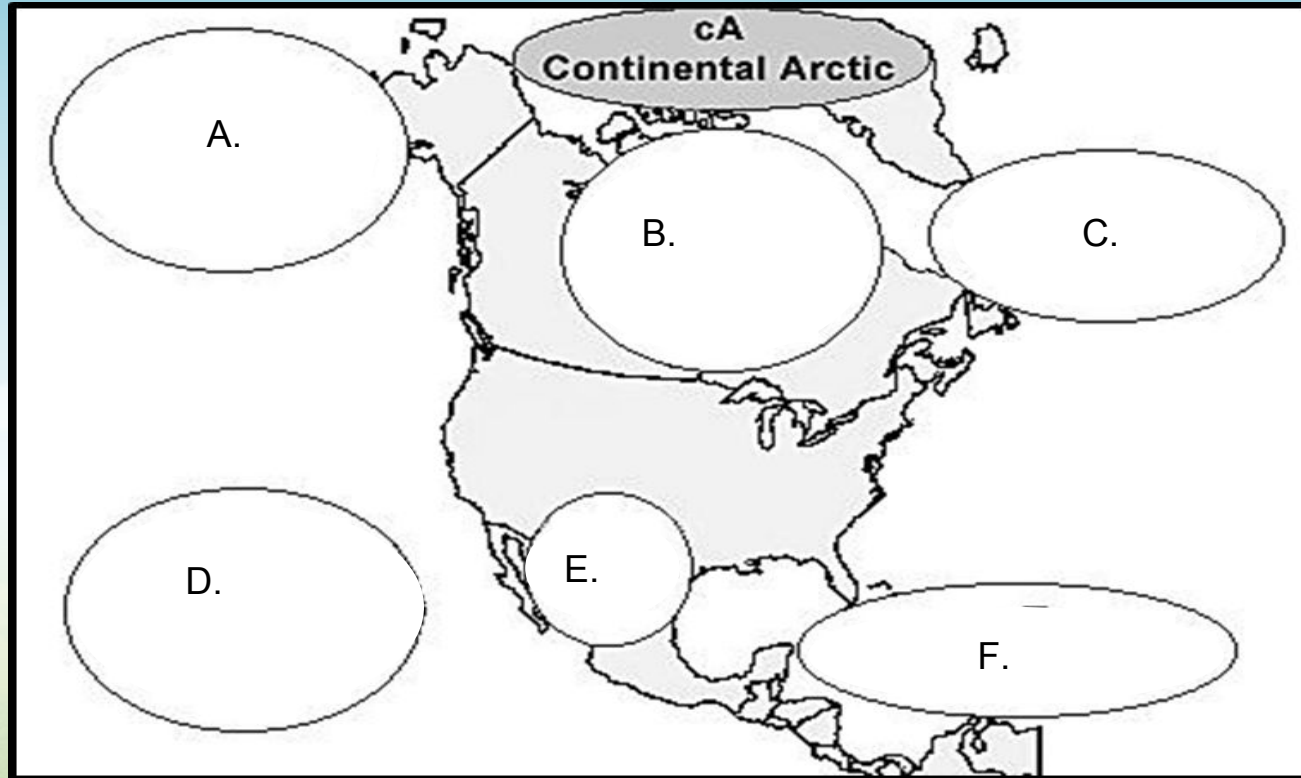
Ex. Marítimo Polar = mP

Continental Polar = c**P**

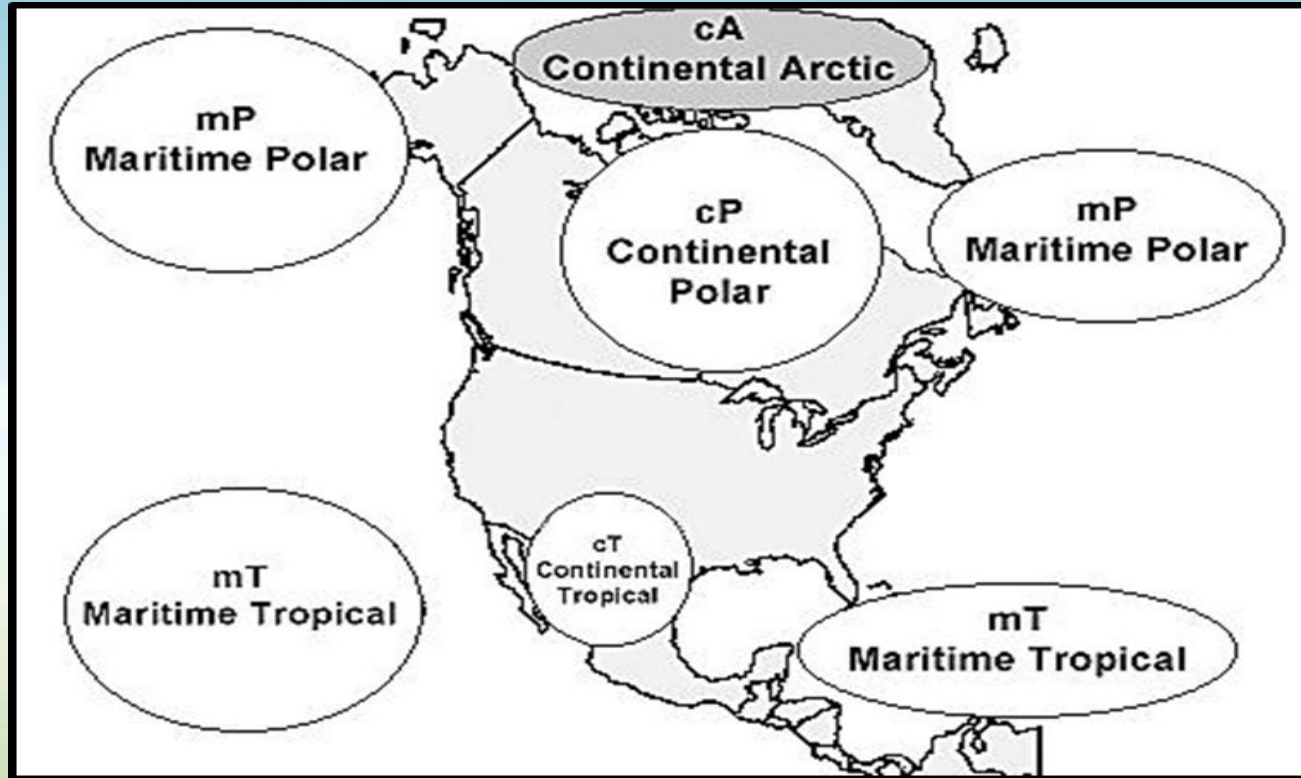
Marítimo Tropical = **mT**

Continental Tropical = **cT**

Classify each of the circles with what type of air mass you would find in each one.



Classify each of the circles with what type of air mass you would find in each one.



As it moves, the characteristics of the air mass change and so does the weather in the area



What type of air mass is cold and dry?

Continental Polar

II. Weather Fronts

A. The boundary between 2 air masses with **DIFFERENT** characteristics.

B. The **DENSITY** of each air mass determines its behavior

More dense objects
rise or fall?

A. El límite entre 2 masas de aire con características **DIFERENTES**.

B. La **DENSIDAD** de cada masa de aire determina su comportamiento

Objetos más densos se elevan o caen?

Weather Fronts

What 2 things
determine density of an
air mass?

¿Qué 2 cosas
determinan la densidad
de una masa de aire?



What do you notice about the two halves of the sky?

C. Weather Fronts

There are 4 types of weather fronts

1. Warm Front
2. Cold Front
3. Stationary Front
4. Occluded Front

Hay 4 tipos de frentes meteorológicos

1. Frente cálido
2. Frente frío
3. Frente estacionario
4. Frente ocluido

In your notes

Take notes on the four types of fronts. You should include each of the following:

1. Diagram/drawing of what is happening in your front
2. Written explanation of what is happening in your front
3. What weather comes from your front
4. Symbol for your front

In groups!

You will be responsible for 1 weather front

10 minutes!

Your group will create a poster with the following about your front...

1. Diagram/drawing of what is happening in your front
2. Written explanation of what is happening in your front
3. What weather comes from your front
4. Symbol for your front

NOTE: copy all info into your notes and be ready to present!

Go to:

<http://bit.ly/14BKnFN>

Cold Fronts

Quickly moving cold air mass runs into a slowly moving warm air mass

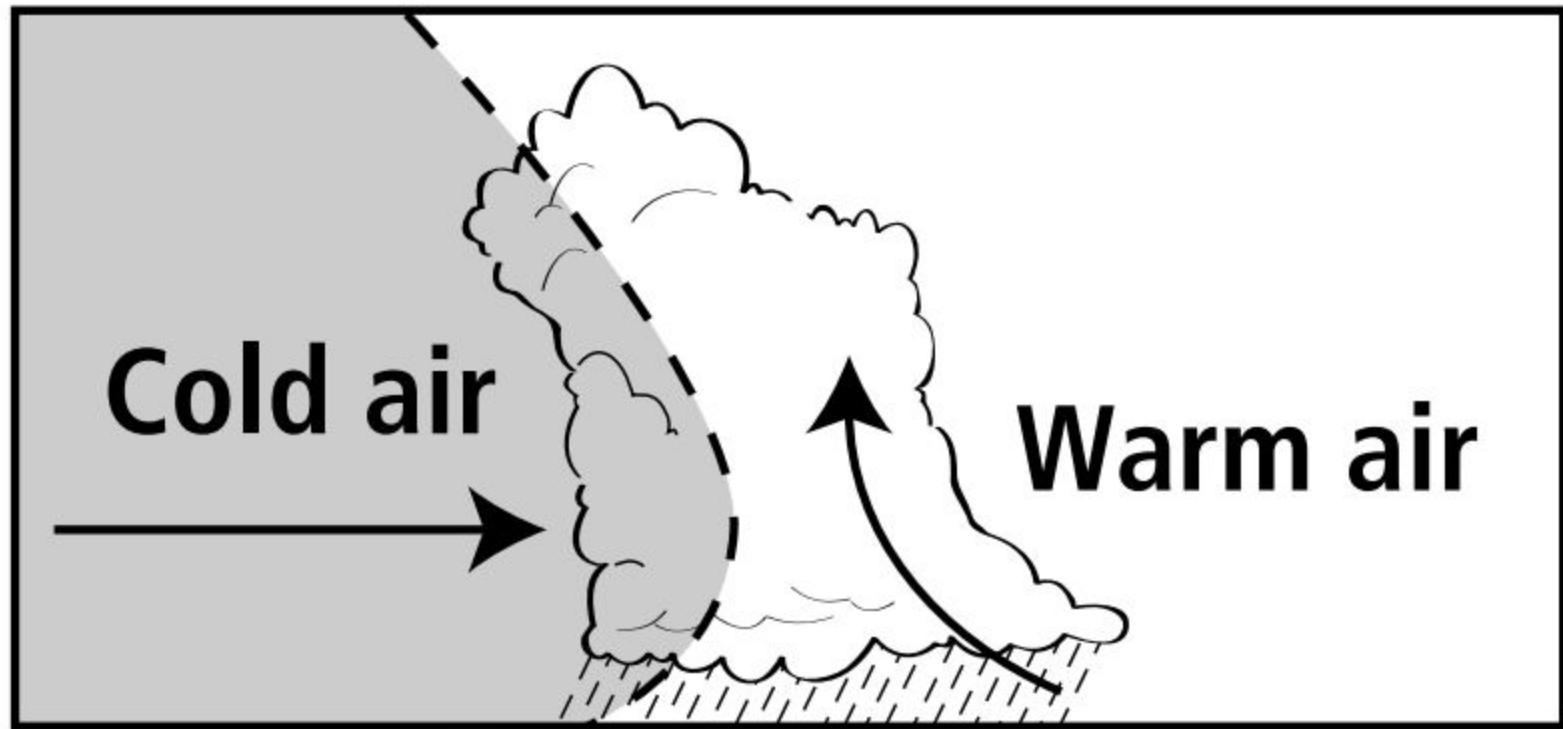
- Cold denser than warm so cold sinks under warm and pushes warm upwards
- Warm air cools, causing clouds to form

CAUSE: abrupt changes in weather

Severe thunderstorms, strong winds

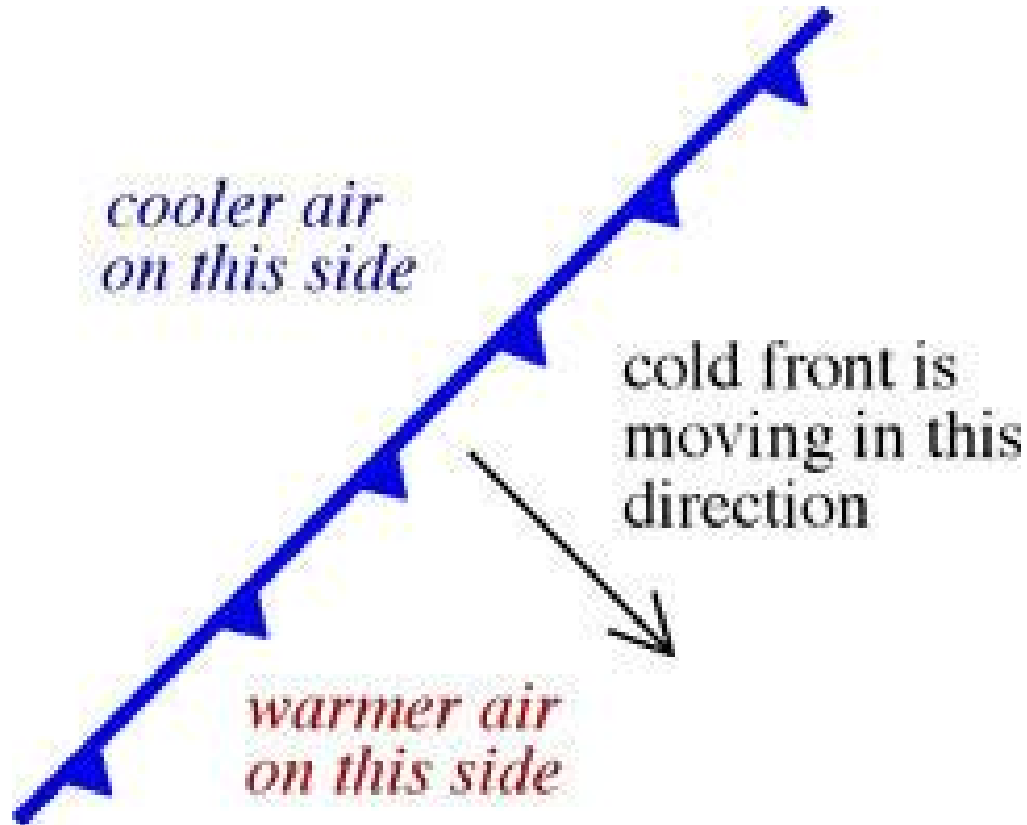
followed by cool, fair weather





Front moving this way →

Cold Front

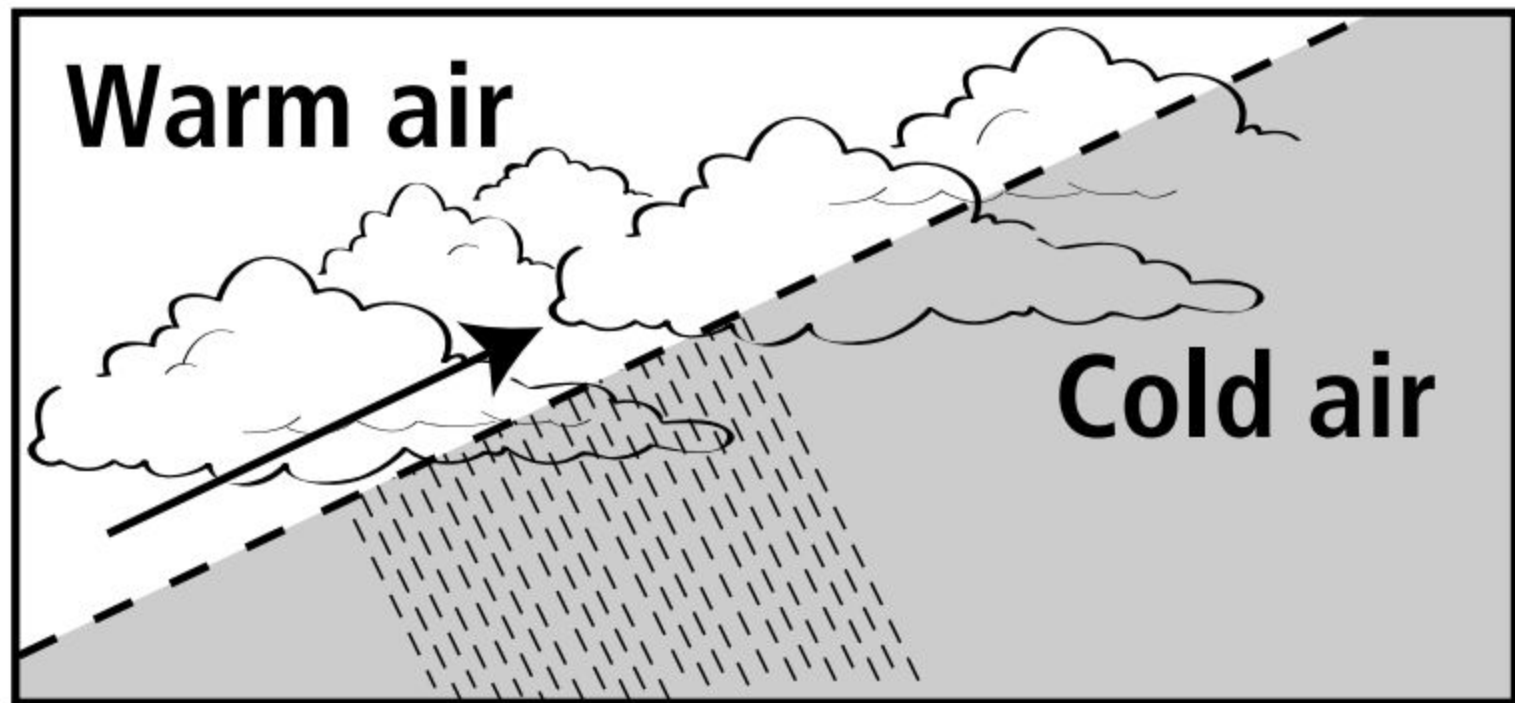


Warm Fronts

Slowly moving warm air mass collides with a cold air mass and rises over

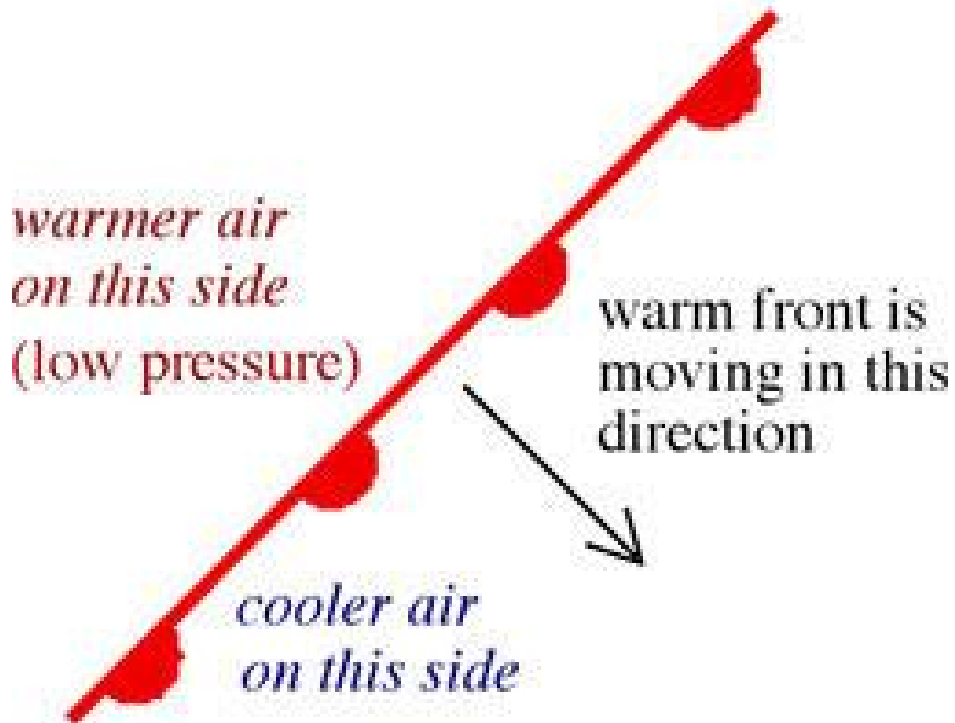
CAUSES: clouds, and light rain

*because warm fronts move slower than cold fronts, may have rainy or foggy weather for several days



Front moving this way →

Warm Front



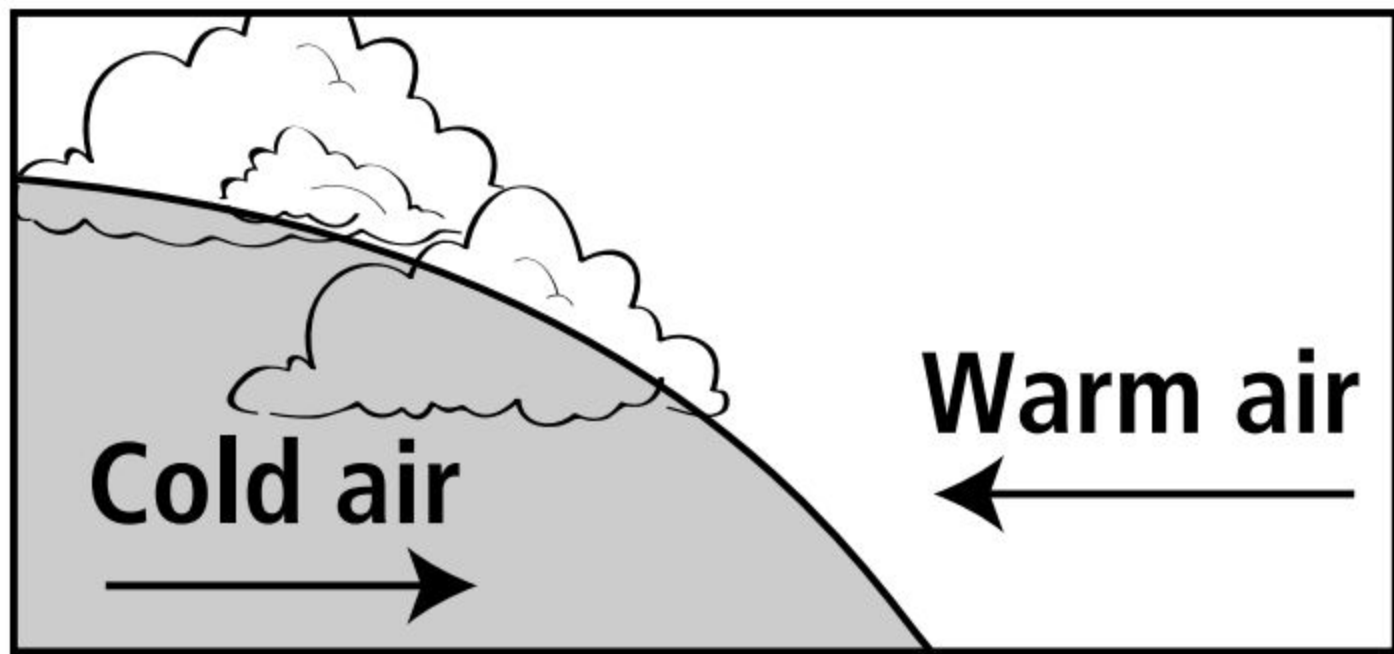
Stationary Front

Cold & warm air masses meet, neither strong enough to overtake the other

- They stay in place for an extended period of time

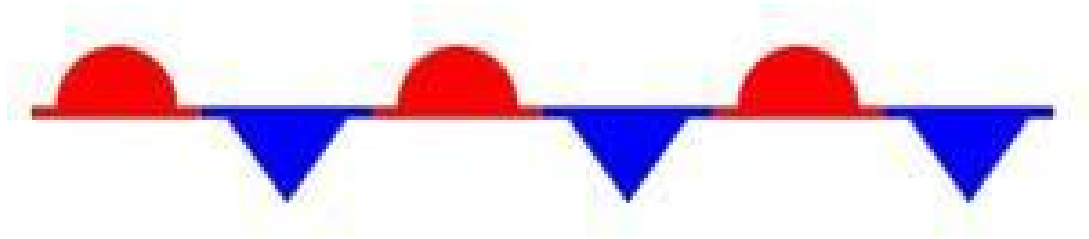
CAUSES: many days of rain, snow, fog, or clouds





**Little or no forward
movement of the front**

Stationary Front



Occluded Front

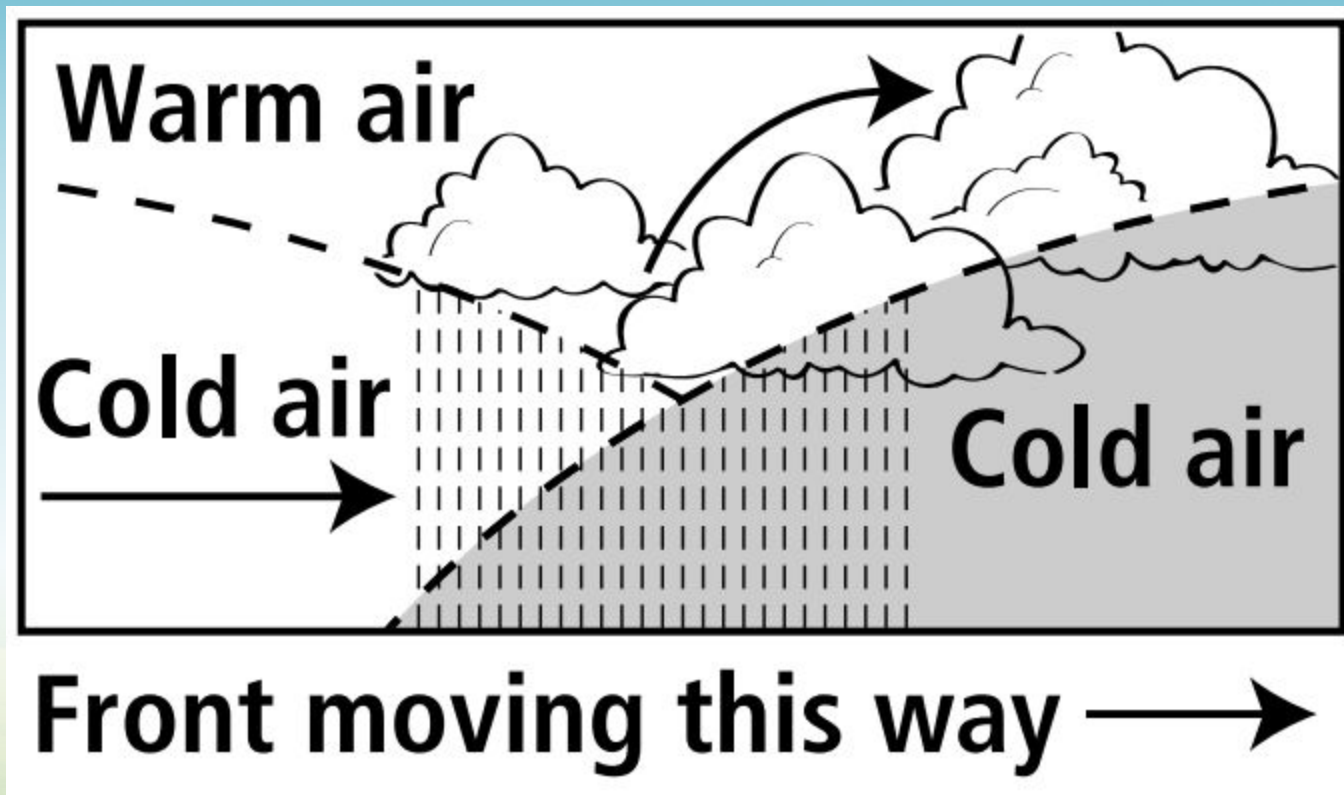
Warm air mass is caught between 2 cooler air masses

- Dense, cool air moves under the warm air and pushes it upwards

(warm air is “**occluded**” or “cut off”)

- Cooler air masses mix in the middle

CAUSES: cool ground temp, strong winds, and heavy precipitation



Occluded Front



Cold Front



Warm Front

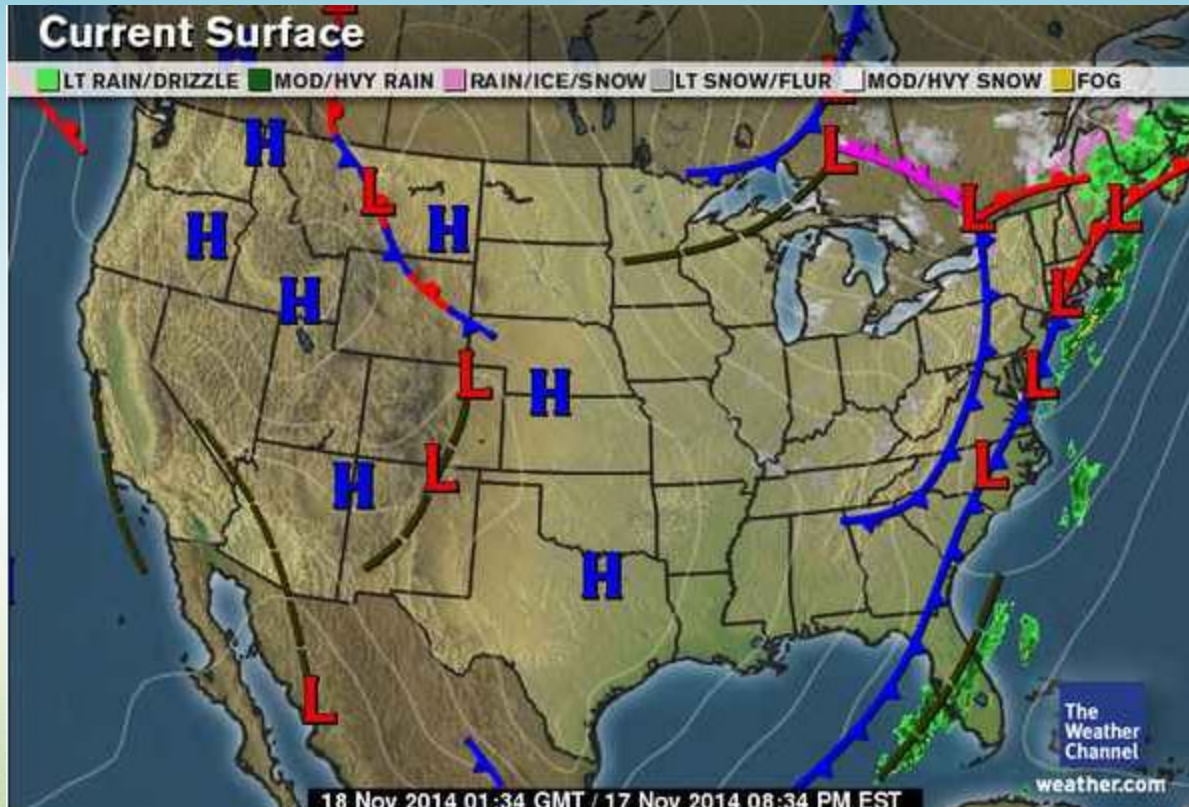


Occluded Front

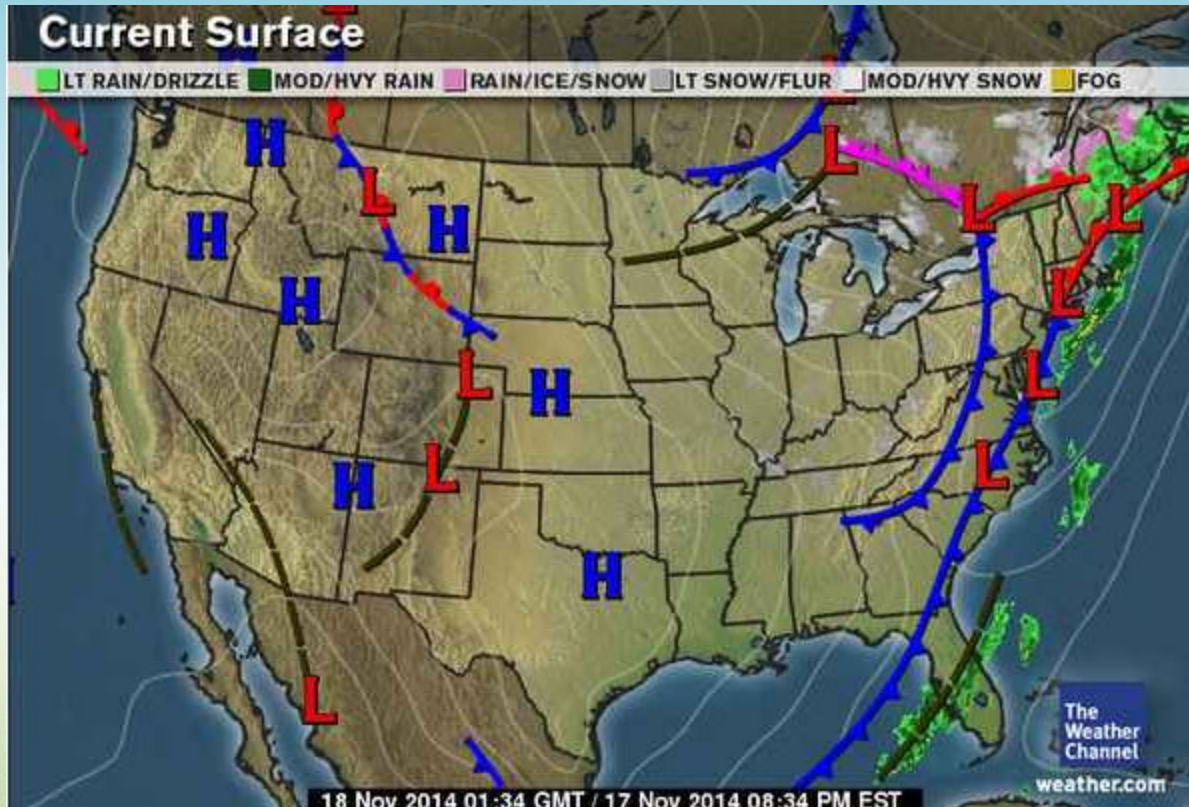


Stationary Front

What type of front is over Charlotte?



What type of front is over Wyoming?



Exit Ticket

1. What type of air mass are you likely to find over the Atlantic Ocean by North Carolina?
2. What type of front is likely to produce rain for several days?
3. What is the symbol for a cold front?
4. Compare and contrast **STATIONARY** & **OCCLUDED** fronts (Provide at least 1 comparison and 1 contrasting fact!)