

ACTIVITY: Weather



Low stratus



Cumulonimbus

Pilots watch the clouds, because clouds can indicate the kind of weather in store for a flight.

FILL IN THE BLANKS OR CIRCLE ONE:

- A. Stratus means flat or “on one level.”

“Low stratus” (clouds near the ground) can be part of a wide area of poor weather near weather **fronts**. A stratus cloud at ground level is called F ____.

Pilots who are certified to fly using instruments only can fly in the low ceilings and poor visibilities typical of low stratus clouds.

- B. Cumulus means “clumped.” Large, tall cumulus clouds can have dark bottoms (bases) indicating they have grown vertically and now block out the sun’s light.

When clouds grow enough vertically, they can produce R ____ by elevating their water vapor until it cools and condenses into water drops which are heavy enough to fall. We call this **precipitation**.

When these clouds grow very tall (20,000 to 50,000 feet) and get very dark, they are called **cumulonimbus** – the cloud structure of a typical T ____ storm.

If cumulonimbus clouds have grown massively in vertical development, rain will likely be **light / moderate / very heavy**. (circle one)

Cumulonimbus clouds grow with afternoon heat or when two air masses meet in a “front.” At a front, warmer and cooler air meet. The warmer air is forced ____, making tall clouds that produce rain or thunderstorms.

ACTIVITY: Weather



Fair weather cumulus



High cirrus

Pilots can fly by avoiding these areas or flying around them.

- C.** Fair weather cumulus have little height (vertical development.) They have **little / great** potential to produce rain.
- D.** Cirrus clouds high altitudes where it is cold, are made of ice crystals, not water vapor. They usually indicate nothing but good flying weather.

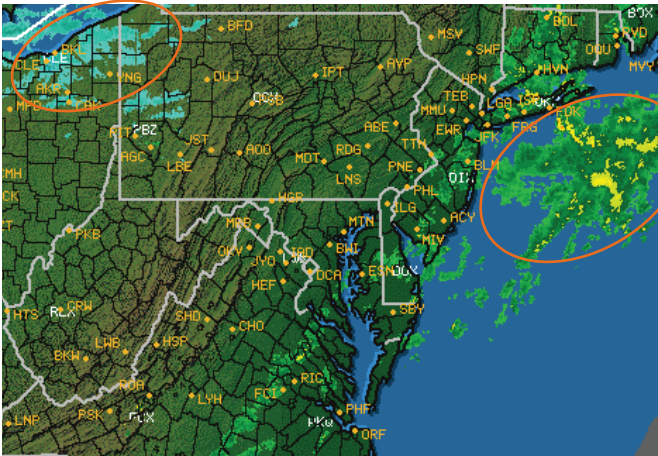
Near tall mountains, some types of windblown cirrus clouds can indicate turbulent air flow over the mountain – showing pilots areas of turbulence to avoid.

Clouds are the pilot’s “road signs” to weather in the area.

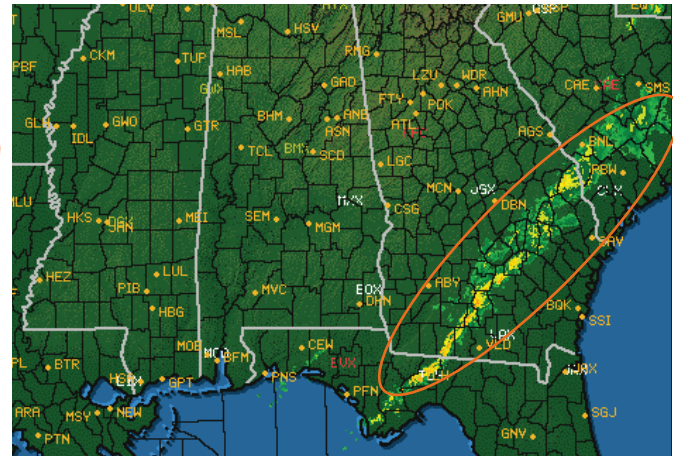
ACTIVITY: Weather

TODAY, PILOTS HAVE MORE THAN CLOUDS TO TELL THEM WHAT'S AHEAD.

WHAT DO THESE SATELLITE IMAGES TELL YOU ABOUT THE LOCAL WEATHER?



Map 1



Map 2

Weather reports, satellite photos and weather radar tell what the weather is beyond what can be seen.

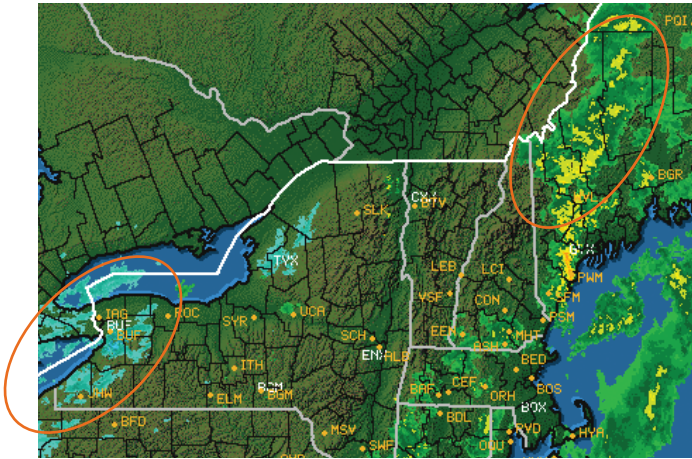
WHAT DO THESE RADAR IMAGES SAY ABOUT WEATHER IN THESE AREAS?

MAP 1: A **line** of R ___ ___ extends from Virginia to Connecticut. An **area** of R ___ ___ extends off-shore into the Atlantic. The heavier rain is shown in YELLOW.

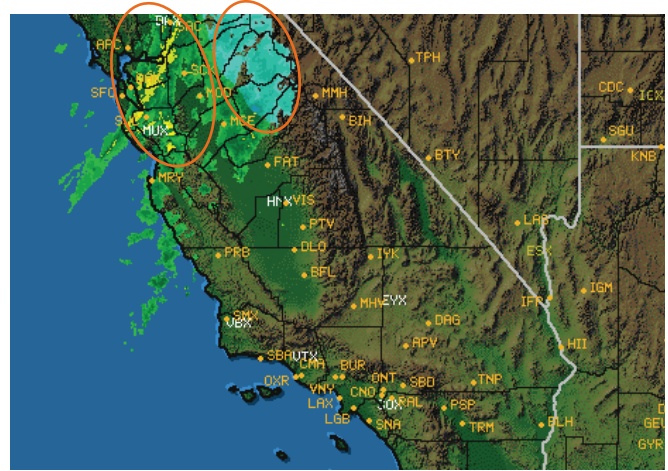
In northern Ohio and NW Pennsylvania, there is “lake effect” S ___ ___ blowing downwind of the Great Lakes, since precipitation in areas below freezing is shown in BLUE.

MAP 2: The Florida Panhandle, Georgia and South Carolina have a line of H ___ ___ rain and thunderstorms shown in YELLOW.

ACTIVITY: Weather



Map 3



Map 4

MAP 3: In Maine, there are embedded T _____ storms shown in YELLOW.

(Embedded: hidden inside areas of general rain.)

To the west, on the border with Canada, there is also L _____ E _____ snow (in blue) downwind of two Great Lakes.

MAP 4: Northern California near San Francisco and the normally warmer coast has an area of rain and a L _____ of heavier rain (in YELLOW).

An area of S _____ is shown (in BLUE) in the normally colder Sierra Nevada, tall mountains east of the city near the Nevada border.

ACTIVITY: Weather

FILL IN THE BLANKS OR CHOOSE ONE:

1. Generally, **BAD / GOOD** weather is associated with high-pressure areas (H on the weather map) while L _ _ _ pressure areas (L on the weather map) often bring **POOR / BETTER** weather.
2. Air flows from high pressure areas towards _ _ _ pressure areas. Atmospheric pressure, called b _ _ _ m e t r i c pressure, is measured by a b _ _ _ m e t e r. When a Low is approaching, _ _ _ _ _ m e t r i c pressure **rises / falls**.
3. In the Northern Hemisphere, air circulation around a High is clockwise. Air circulation around a Low is c _ _ _ _ _ -clockwise.
4. The J _ _ _ Stream is described as a “river” of strong winds that snakes around the globe at high altitudes, where jets fly. It helps steer Highs and Lows (and associated storm systems) in their movement across the U.S.
5. Because of prevailing winds and the rotation of the e _ _ _ _ , weather in the U.S. generally moves from West to _ _ _ _ .
6. Temperature, wind and a _ _ _ pressure can change as a front passes by. After a cold front passes, it usually will be W _ _ _ y and cooler.
7. Since the cold front was probably generated by the inflow from a high pressure area, barometric pressure after a front passes will probably **fall / rise**.
8. Heating of the earth’s surface by the sun during the day can cause c _ _ _ _ _ s to form or grow, if enough moisture is in the air. Lots of heating causes vertical development, leading to r _ _ _ _ or even a t _ _ _ _ _ storm.

TRUE OR FALSE

- _____ Air tends to flow from areas of low pressure to areas of high pressure.
- _____ When two air masses meet, it is called a front.
- _____ Pilots cannot fly in the rain.
- _____ At higher altitudes, water vapor in clouds can create ice on aircraft, even in the summer.