

Field Weather Awareness

First Principles

Field Weather Awareness

First Principles

Bouyancy

Least Dense Rises

Field Weather Awareness

First Principles

Warm Air – Less Dense

Dry Air – Less Dense

Field Weather Awareness

First Principles

Warm Air – Can Hold MORE Water

Reduced Pressure = Colder Air

Increased Altitude = Reduced Pressure

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First Principles

Relative Humidity = Percentage of Water a Parcel
of Air Can Hold

0% Relative Humidity = Absolutely Dry Air

100% Relative Humidity = Saturated Air

Saturated Air = Condensate = Clouds

Field Weather Awareness

First Principles

Air Flows From Higher Pressure
To
Lower Pressure

Field Weather Awareness

Coriolis Effect

The Earth's Rotation causes all moving objects in the Northern Hemisphere to curve to the RIGHT due to conservation of angular momentum.

Field Weather Awareness

Weather is COMPLEX

Mix of:

Global (Frontal) Patterns
And
Local Effects

Field Weather Awareness

SOME can be inferred by

Local Tells

Field Weather Awareness

Frontal Weather

Field Weather Awareness

THE POLAR FRONT AND JET STREAM

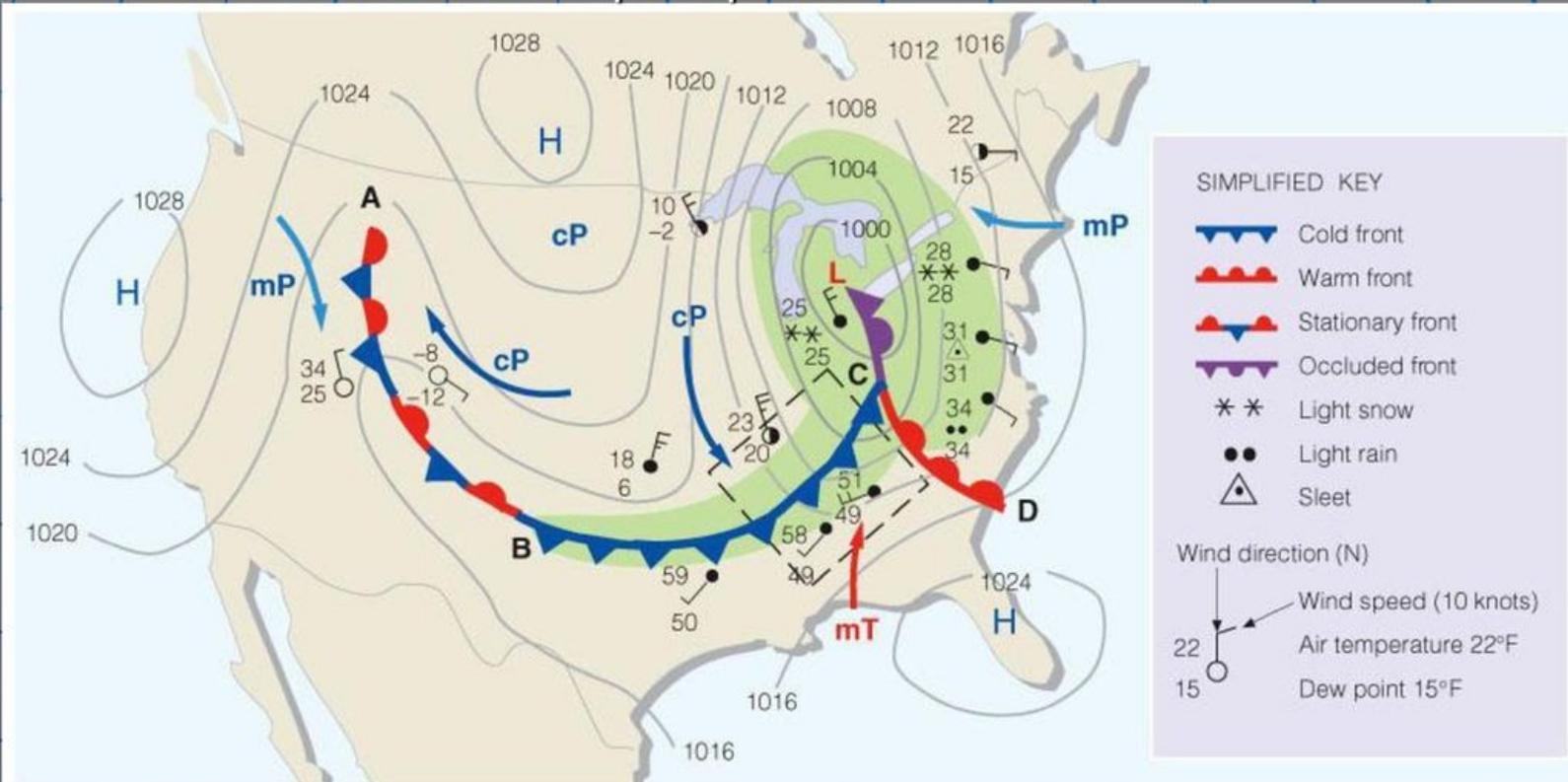


Field Weather Awareness



Weather Map

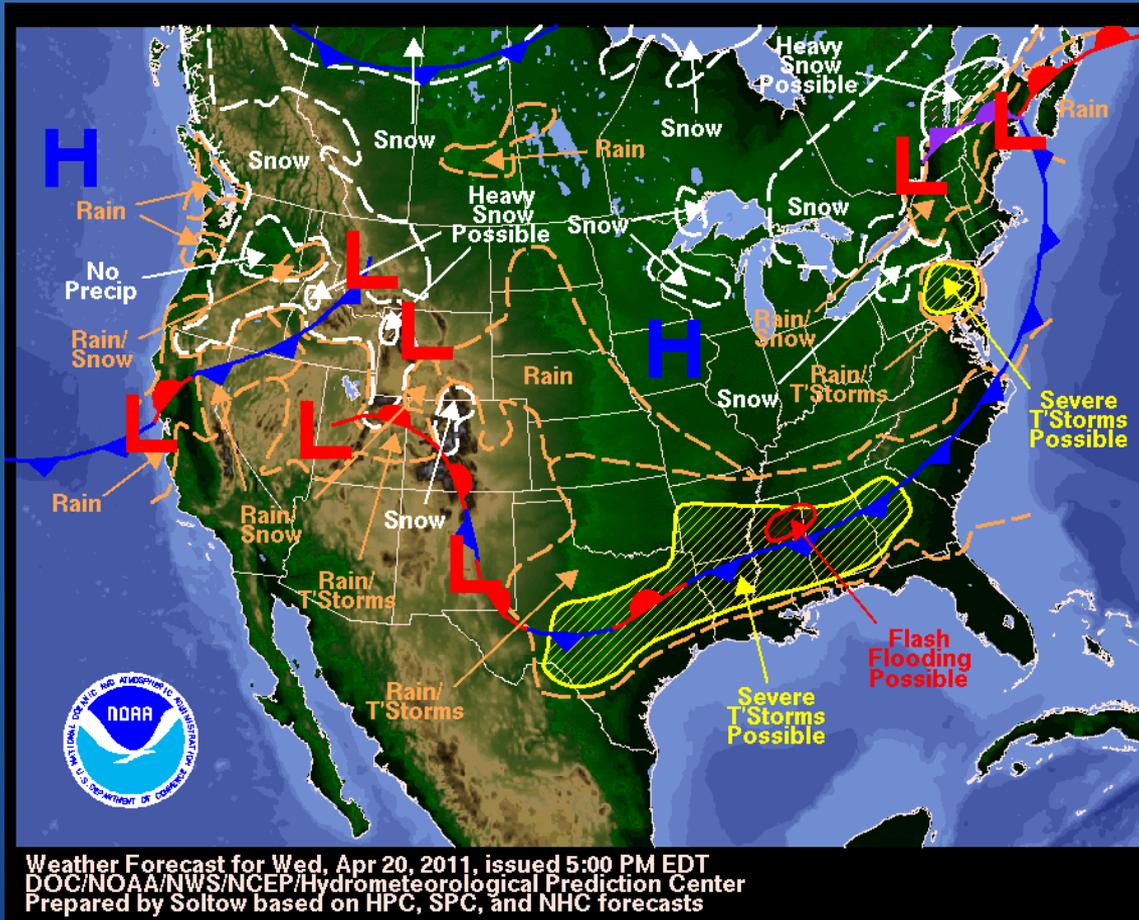
- Shown: surface-pressure systems, air masses, fronts, isobars, winds and air flow (large arrows)
- Green-shaded area: precipitation



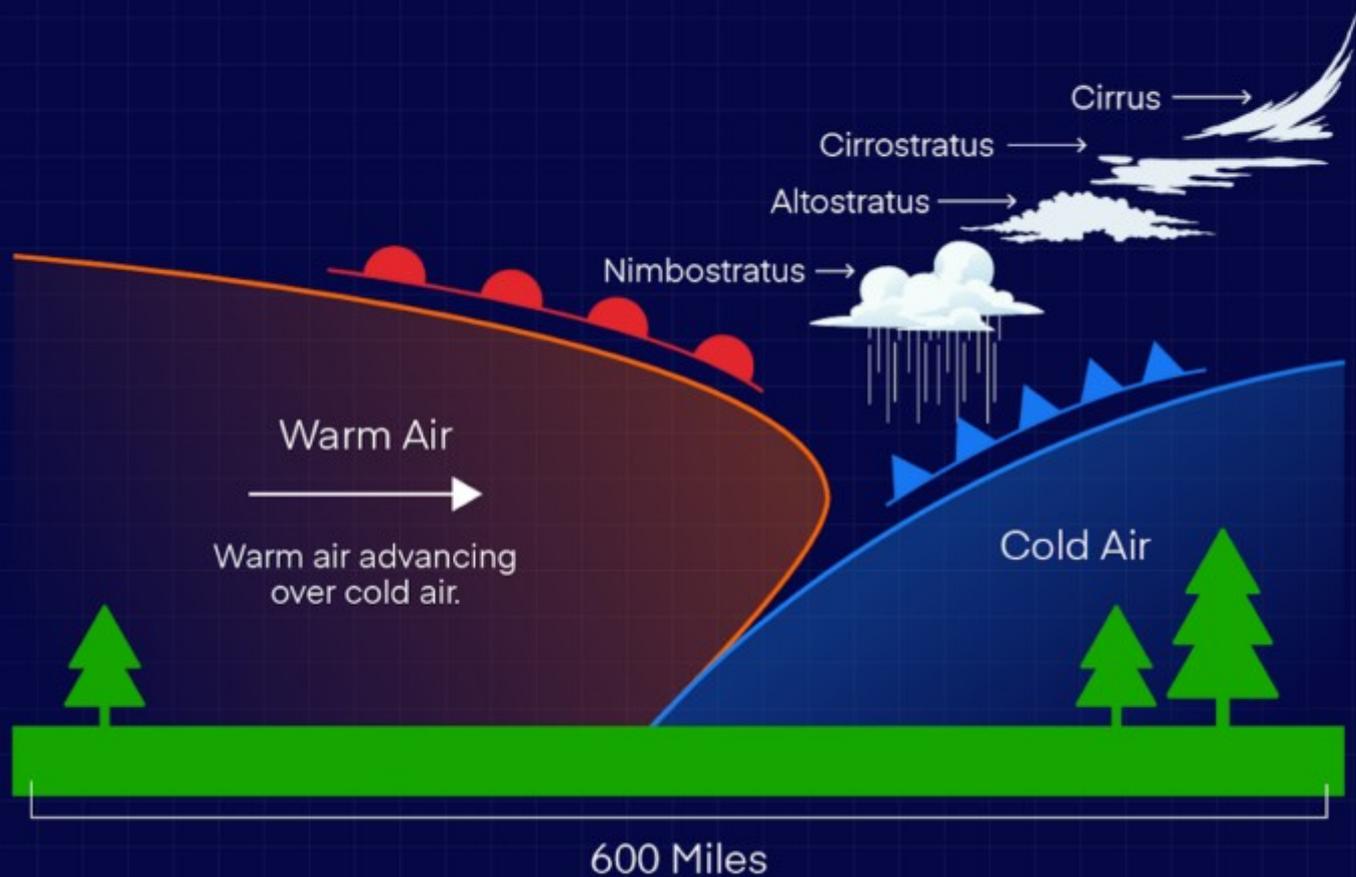
Field Weather Awareness

If I Face Into the Wind:
The Low Pressure is to my
RIGHT

Field Weather Awareness



Warm Front



A warm front forms when warm air slides over cooler air, bringing clouds and steady rain.

Field Weather Awareness

Approaching Warm Front Cloud Sequence
Cirrus Ice Crystals Frontal Passage ~ 24 Hours



Field Weather Awareness

Approaching Warm Front Cloud Sequence
Cirrus Stratus Mostly Ice Sometimes Appears as
Sun or Moon Halo Frontal Passage ~ 12 – 16 Hrs



Field Weather Awareness

Approaching Warm Front Cloud Sequence
Alto Stratus Water an Ice Frontal Passage < 12
Hrs

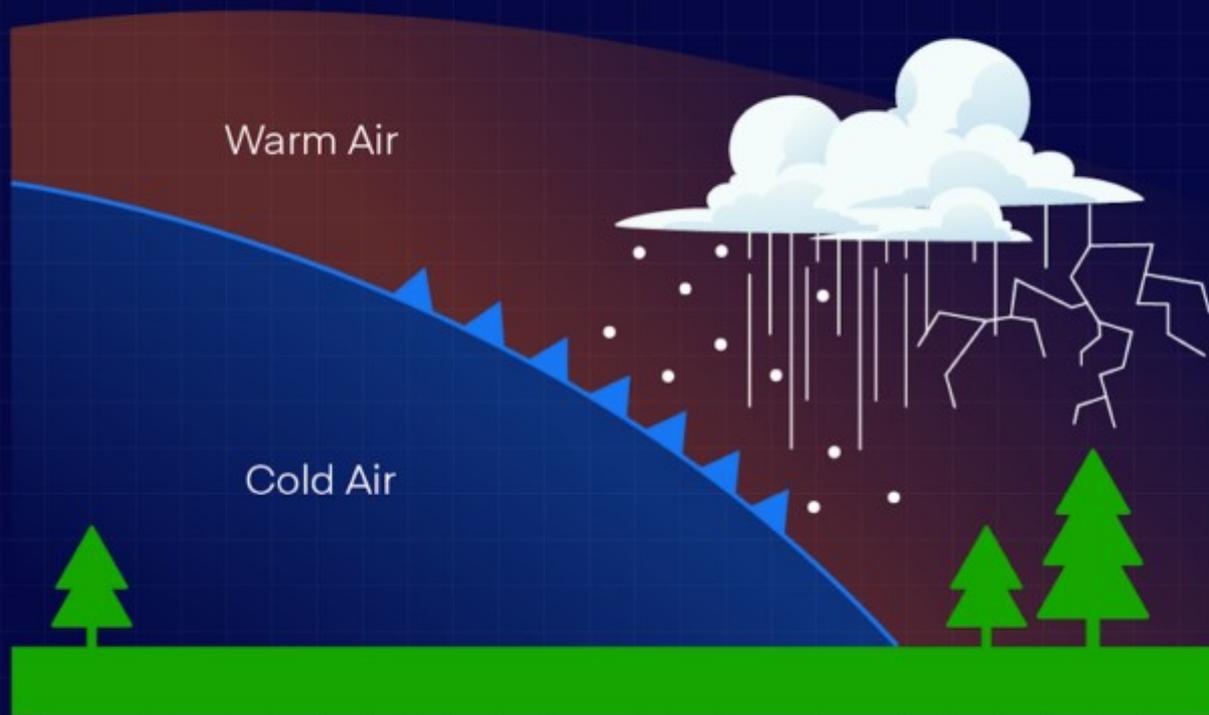


Field Weather Awareness

Approaching Warm Front Cloud Sequence
Nimbo Stratus Mostly Water Frontal Passage
Now



Cold Front



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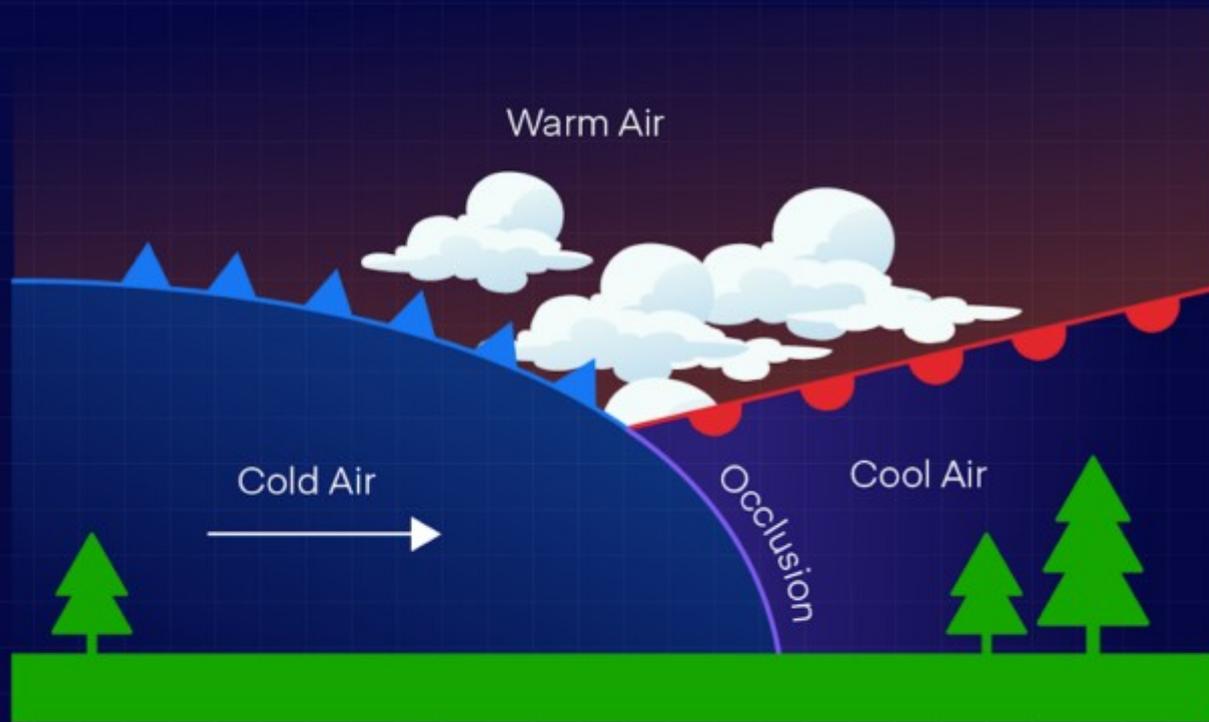
Cold fronts push warm air upward, forming clouds. They move fast—up to 60 mph—and can trigger storms, lightning, hail, or even tornadoes.

Field Weather Awareness

Cold Front Clouds CumuloNimbus Frontal
Passage Now



How Occluded Fronts Occur



Occluded fronts occur when a faster-moving cold front catches up to a slower-moving warm front.

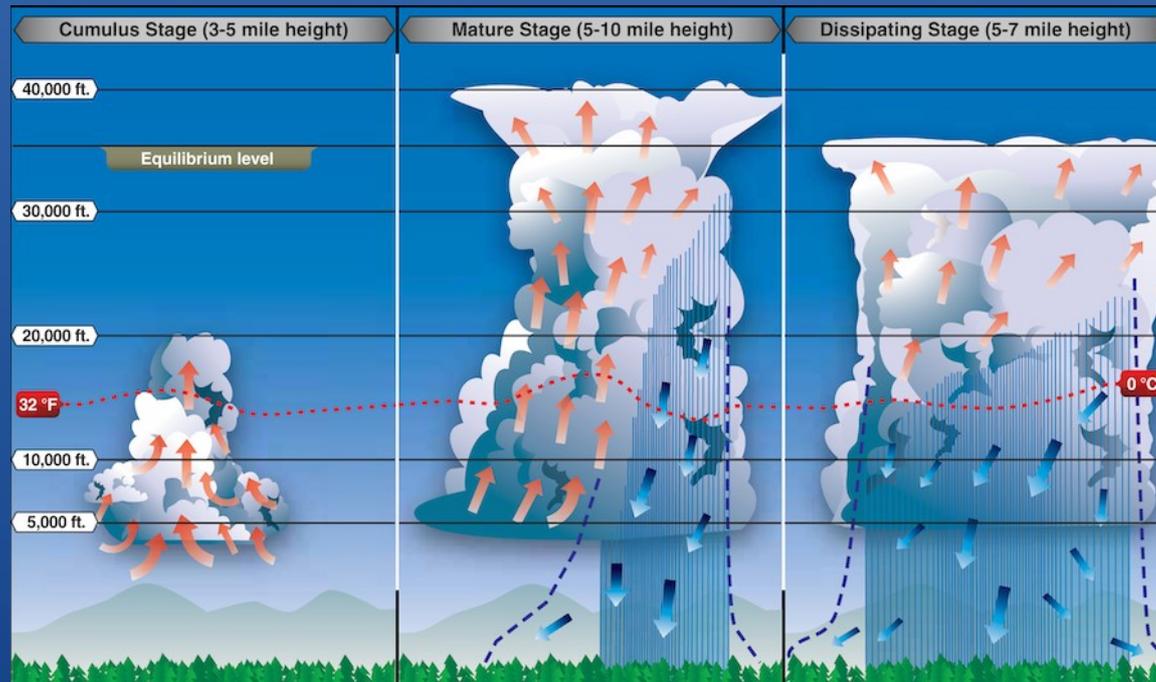
Field Weather Awareness

Local Effects
Vertical Development Cumulus



Field Weather Awareness

Local Effects Vertical Development NimboCumulus



Field Weather Awareness

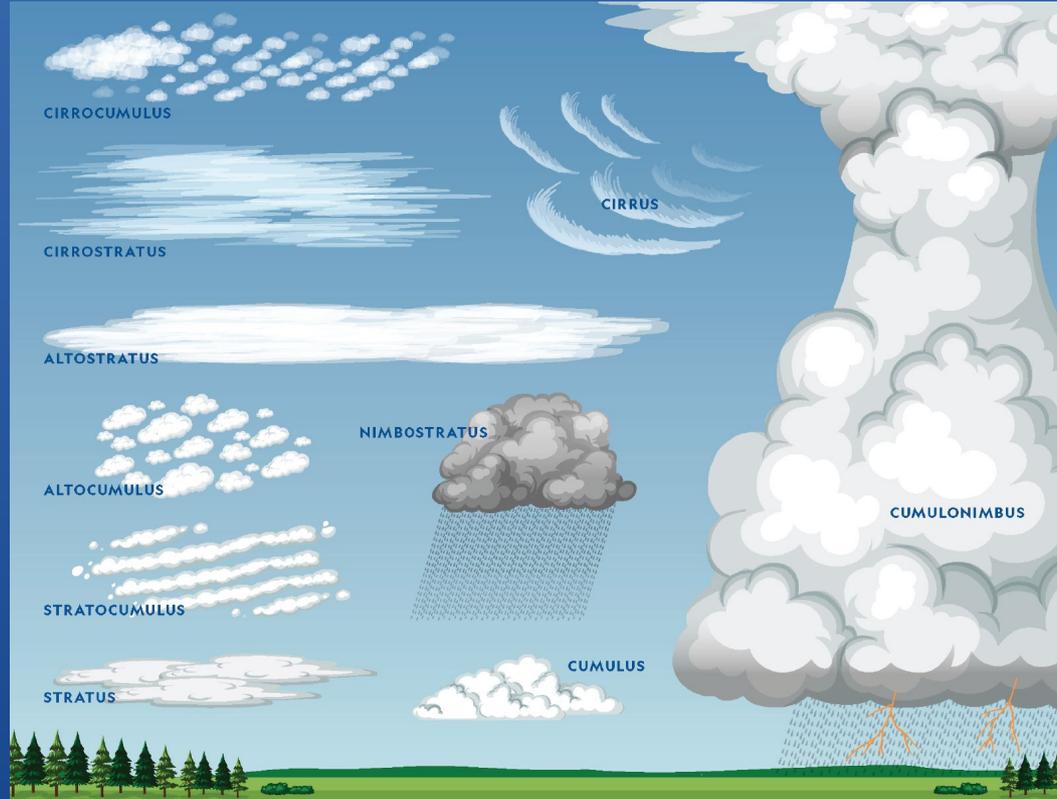
Local Effects

Vertical Development NimboCumulus



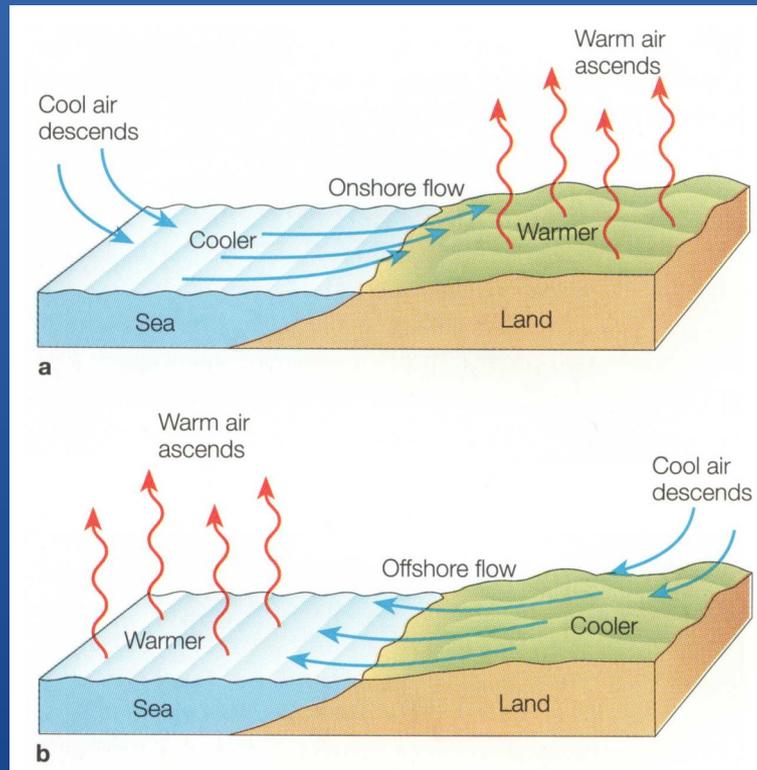
Field Weather Awareness

Cloud Type Review



Field Weather Awareness

Local Effects On Shore/Off Shore Winds



Field Weather Awareness

Local Effects
Topographic Steering

River of Air

Field Weather Awareness

Local Effects

Fog = Cloud in Contact with Ground

Field Weather Awareness

Local Effects

Marine Layer

Thin Layer of Atmosphere Cooled or Heated
By the Ocean

Field Weather Awareness

End

Field Weather Awareness