

METEOROLOGY

Cold Front

Cold Fronts

A cold front occurs when a mass of cold, dense, and stable air advances and replaces a body of warmer air. A cold front has a steep frontal boundary.

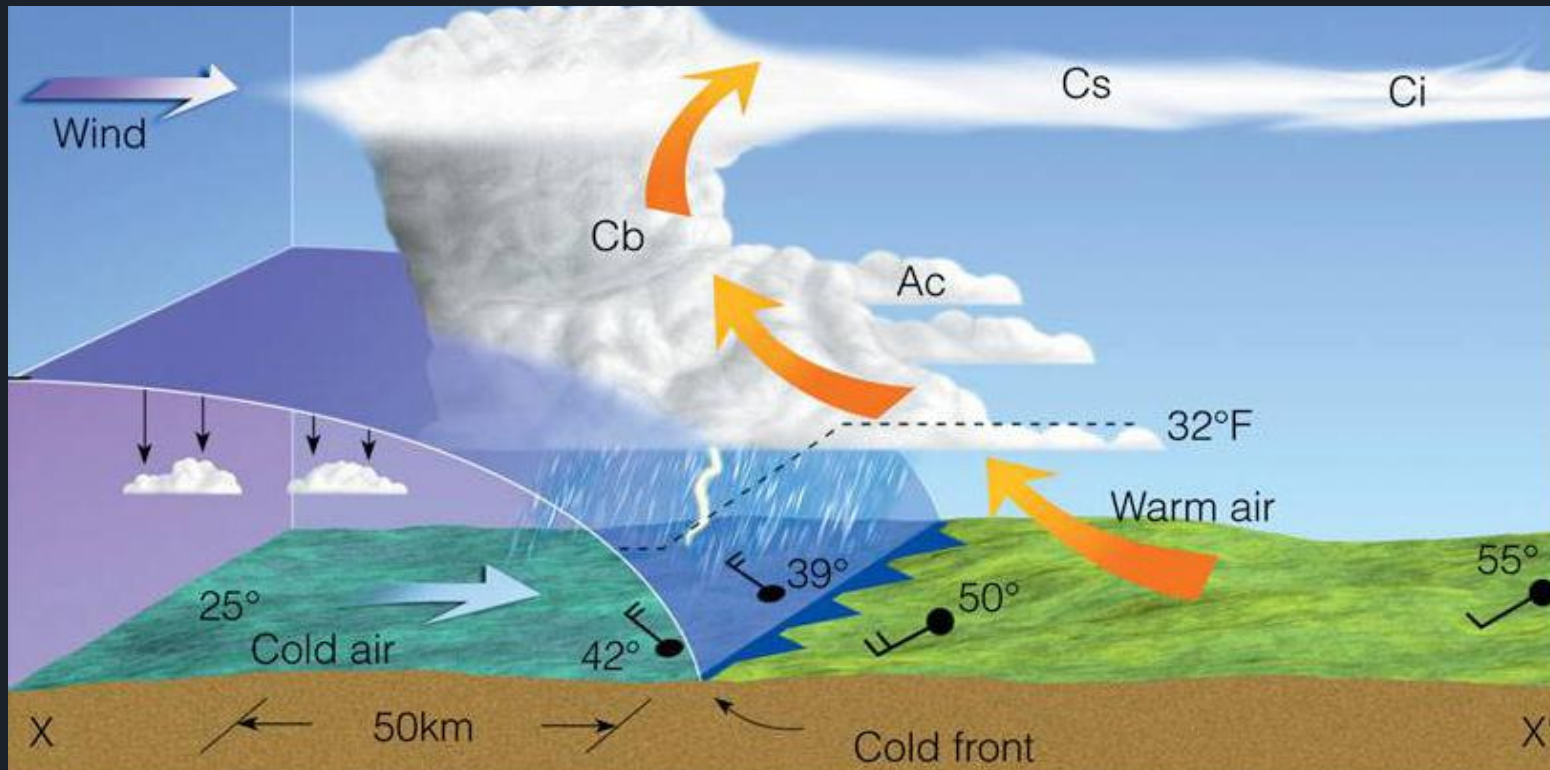


Image courtesy of: Thomson Higher Education

> Rate of Movement

Cold fronts move more rapidly than warm fronts, progressing at an average rate of 25 to 30 mph.

> Warm Air Lifted Aloft

Cold air undercuts and lifts the warmer air aloft.

> Cloud Formation

The rapidly ascending air causes the temperature to decrease suddenly, forcing the creation of clouds.

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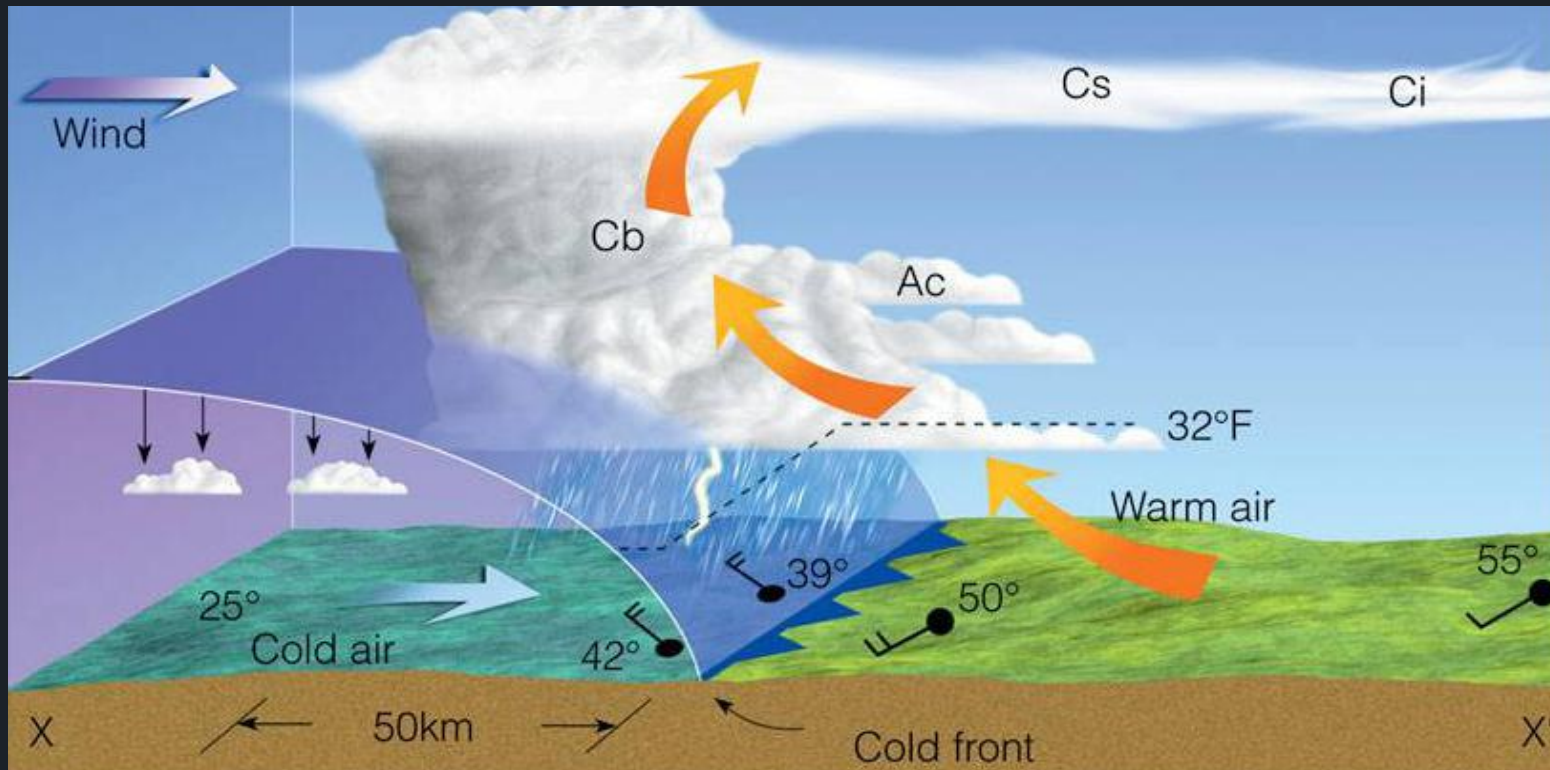


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> Fast Moving Cold Fronts

A combination of a fast moving cold front and unstable air can create thunderstorms or squall lines.

> Squall Lines

Squall lines are a very narrow band of thunderstorms along or ahead of a cold front.

> Hazard to Safety

Squall lines present a hazard to aviation safety as the associated thunderstorms are very violent.

Weather Associated with a Passing Cold Front

| | Before Passing | While Passing | After Passing |
|----------------------|---------------------------|---|-------------------------|
| Winds | south-southwest | gusty; shifting | west-northwest |
| Temperature | warm | sudden drop | steadily dropping |
| Pressure | falling steadily | minimum, then sharp rise | rising steadily |
| Clouds | increasing: Ci, Cs and Cb | Cb | Cu |
| Precipitation | short periods of showers | heavy rains, sometimes with hail, thunder and lightning | showers then clearing |
| Visibility | fair to poor in haze | poor, followed by improving | good, except in showers |
| Dew Point | high; remains steady | sharp drop | lowering |