



# National Weather Association Aviation Meteorology Committee

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## NAVIGATION

START  
(From  
Beginning)



PAUSE



PLAY  
(After Pause)



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(At End)



Note

Allow animation to finish or  
"Click" STOP to disable audio  
before proceeding to another  
page.

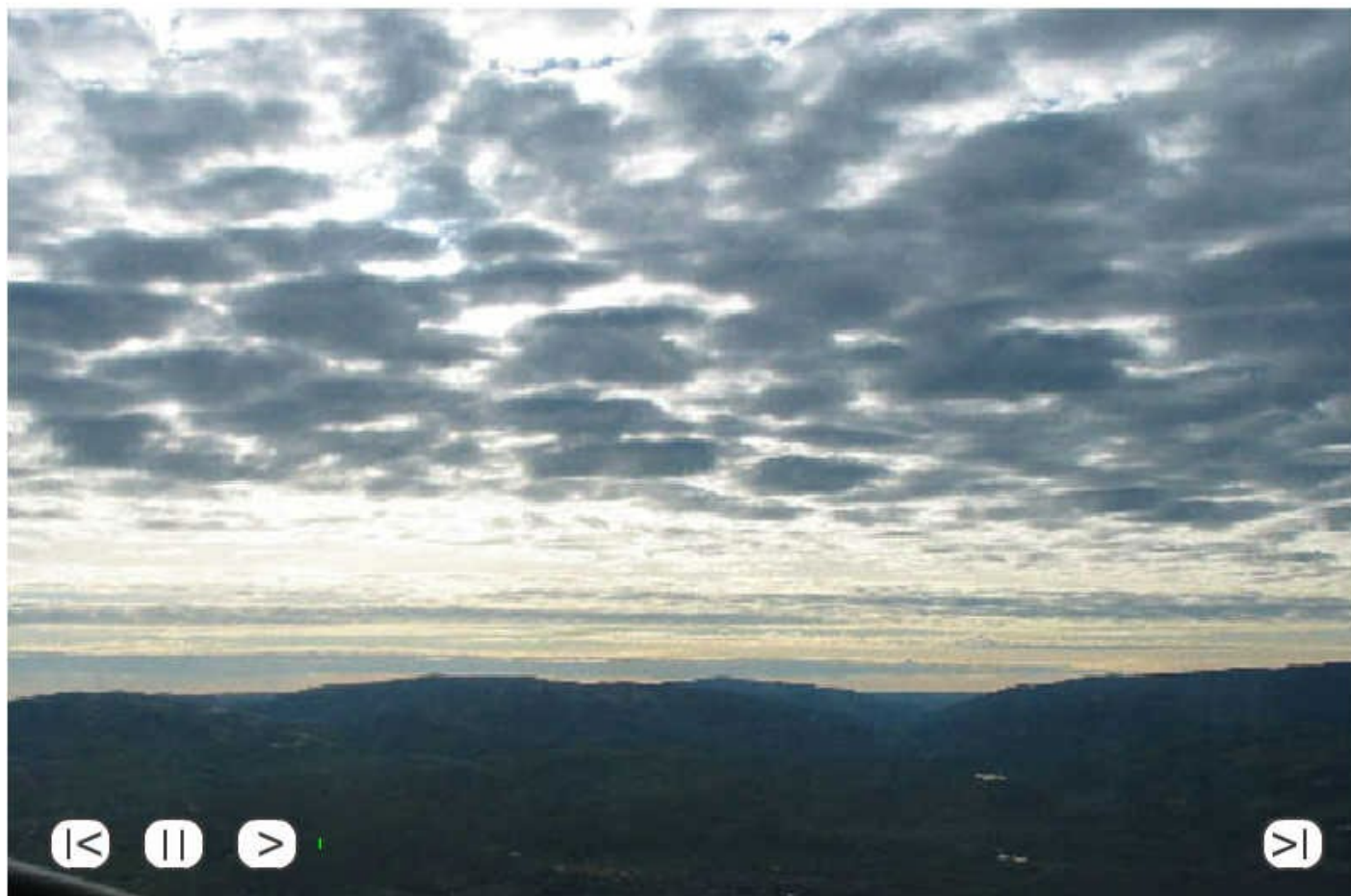


# Weather Theory for Pilots

## Introduction



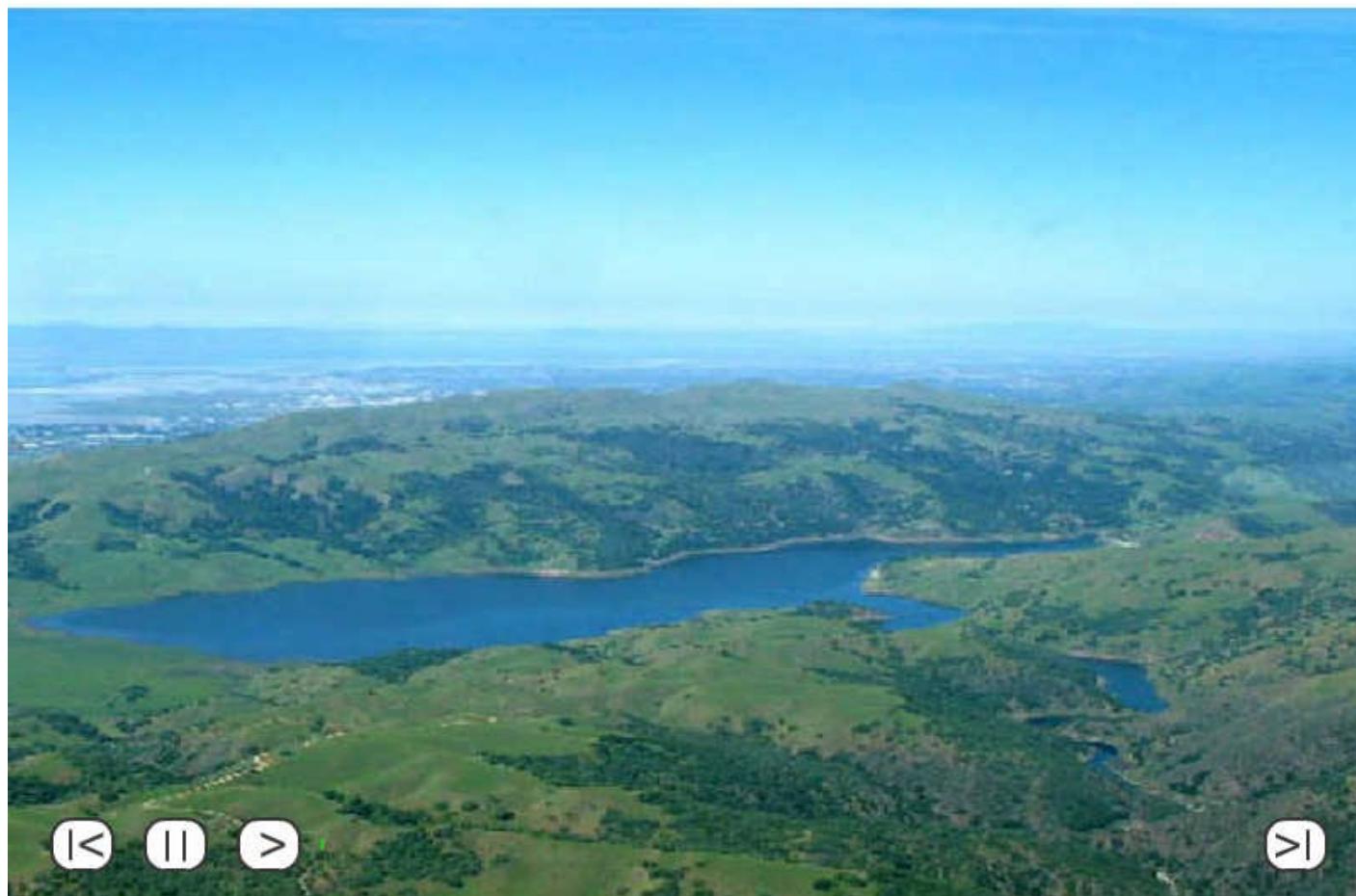
**primrose path**—To be lead down a particular track. Describes a road of ease, apparent least resistance; often used to express a route to disaster.



# Weather Theory for Pilots

## Oversimplification

For an additional explanation of  
Lapse Rate refer to the Stability  
Module.





# Weather Theory for Pilots

## The Weather Equation

Weather =





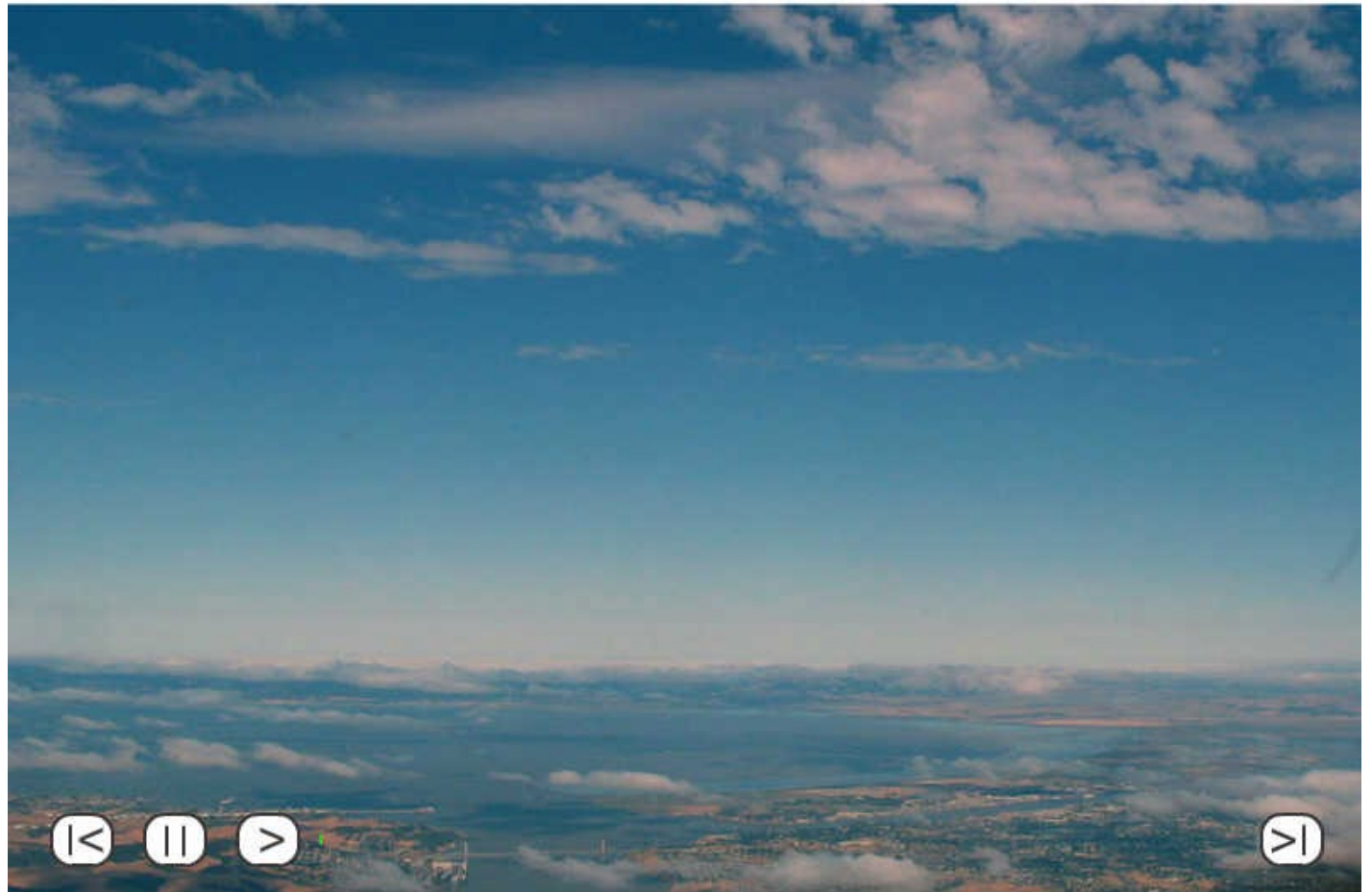
# Weather Theory for Pilots

Moisture/Vertical Motion/Stability



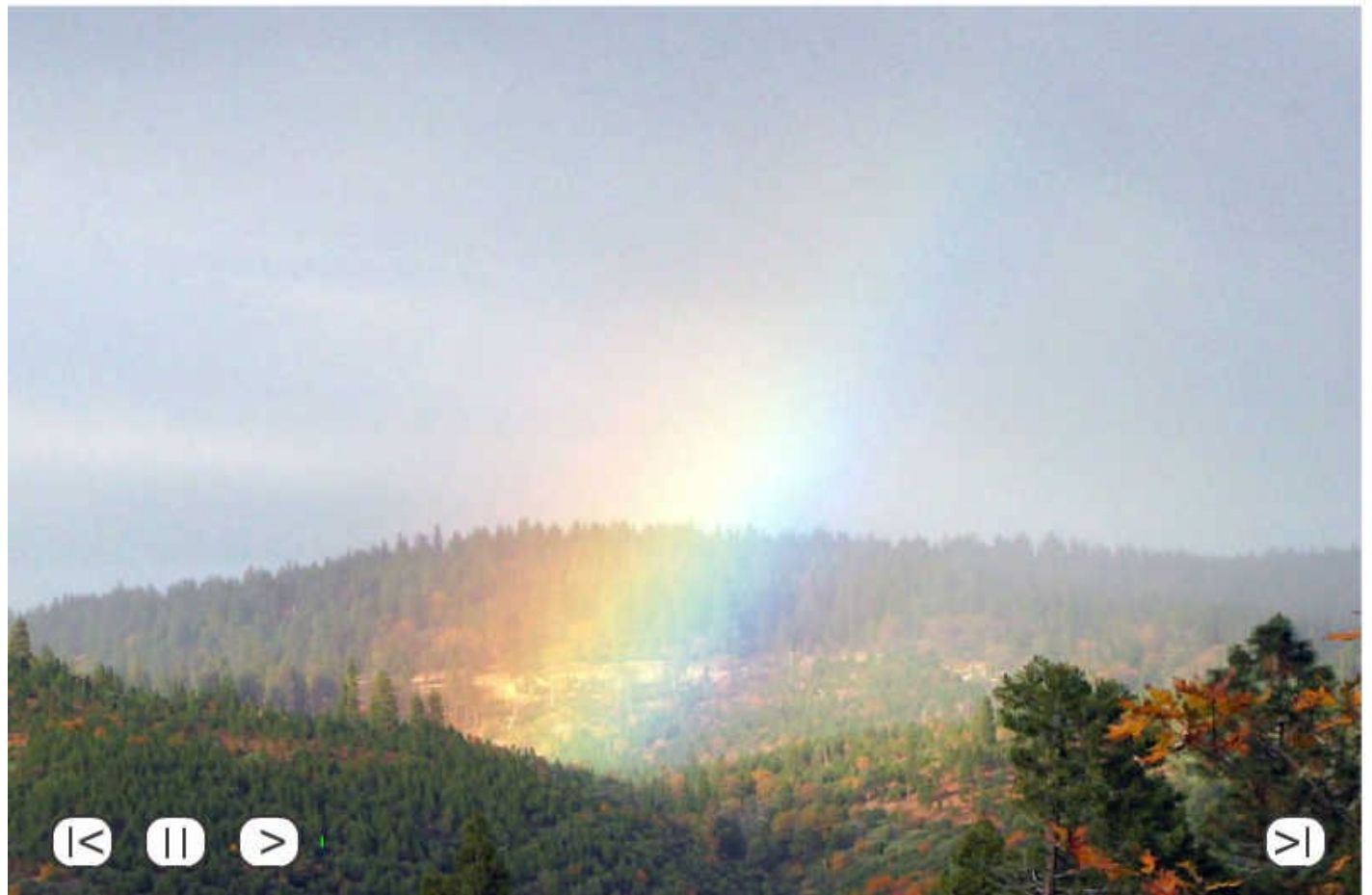
# Weather Theory for Pilots

## Summary



# Weather Theory for Pilots

## Introduction





# Weather Theory for Pilots

## Relative Humidity & Dewpoint

Recall that we stated: "...some of the theory and explanations we'll discuss are oversimplified." Air does not "technically" HOLD WATER VAPOR; this description is merely an analogy.



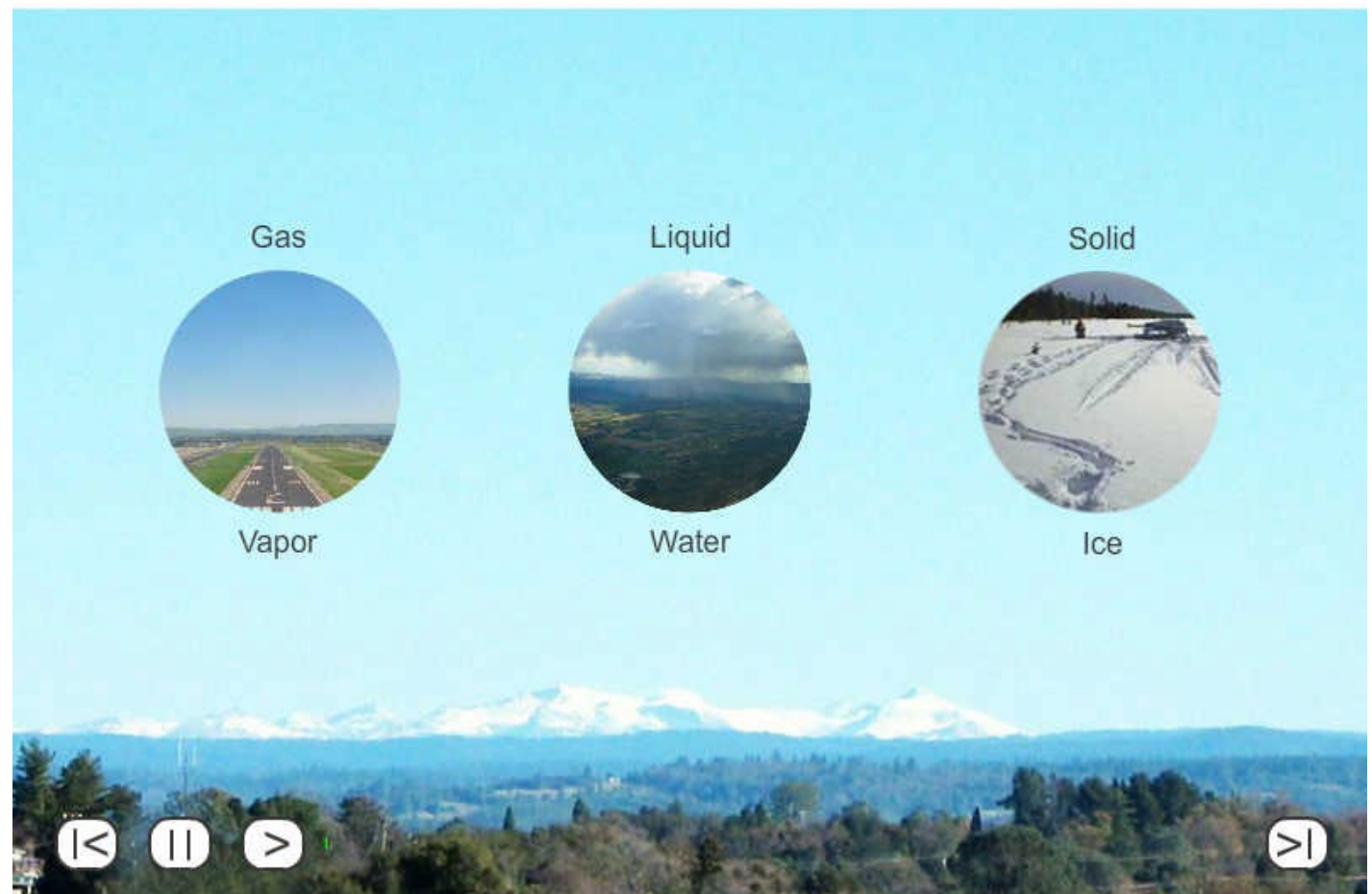
# Weather Theory for Pilots

## Capacity of the Air to Hold Water Vapor



# Weather Theory for Pilots

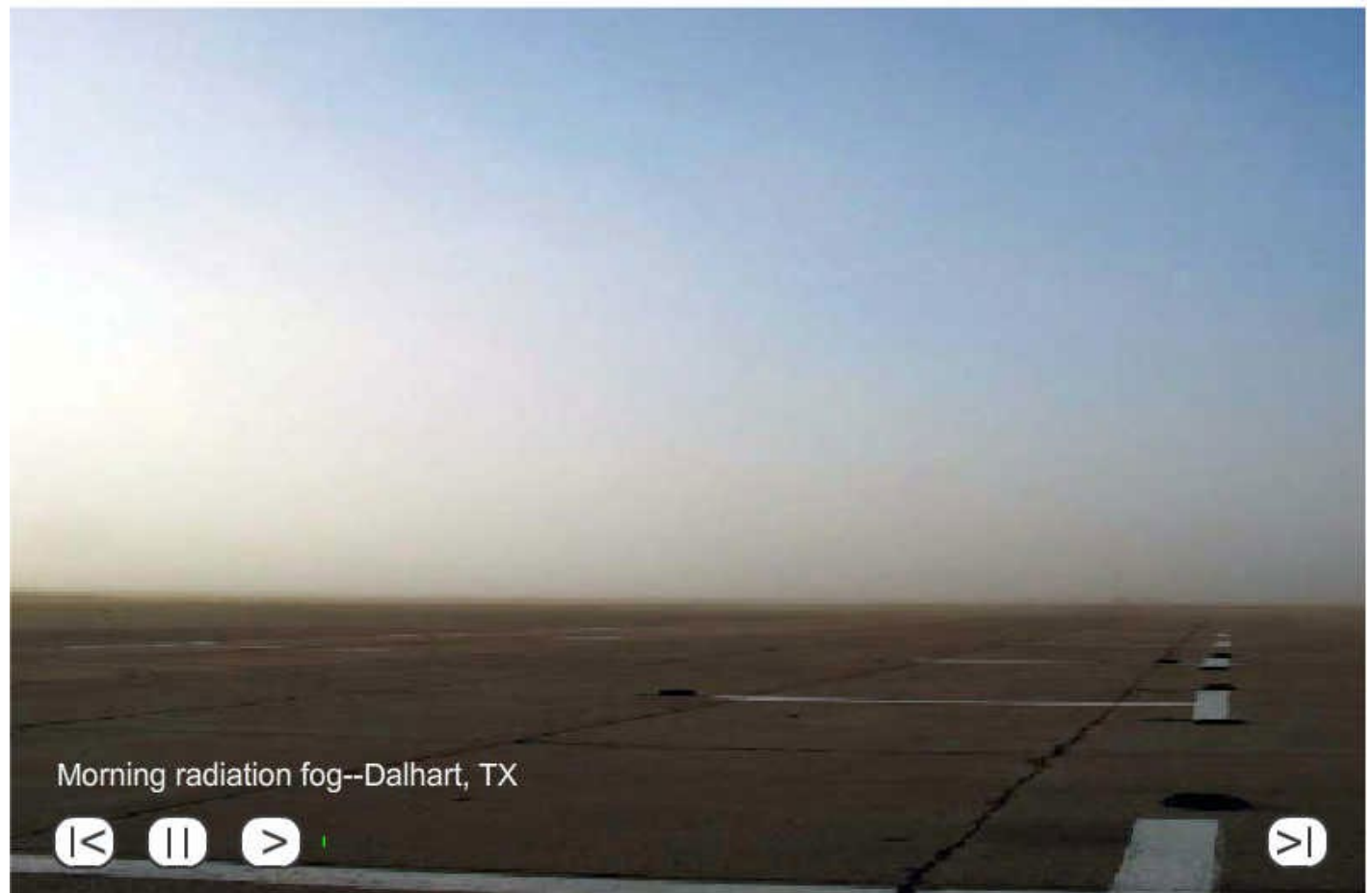
## Change of Phase





# Weather Theory for Pilots

## Rule of Thumb

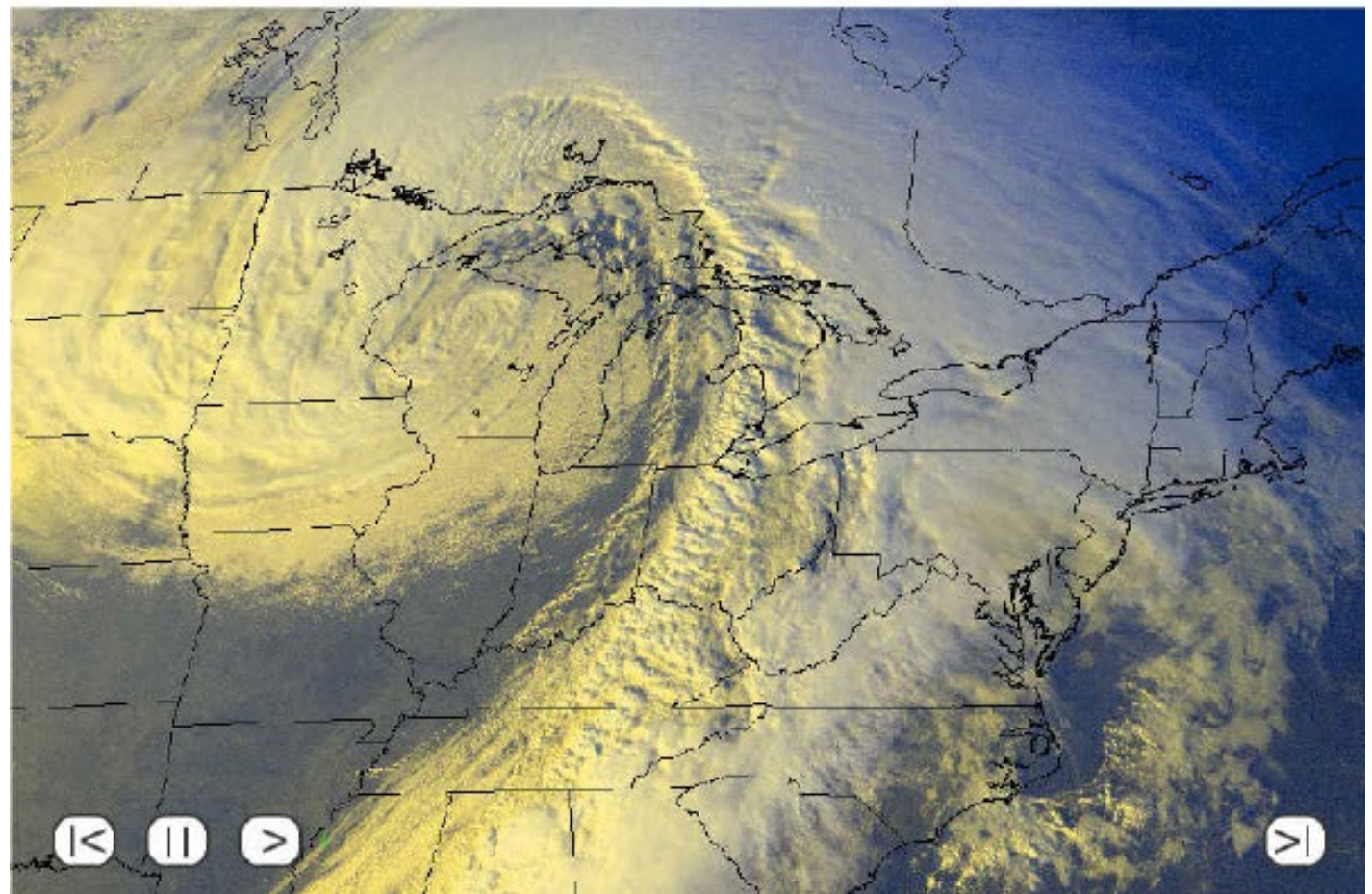


# Weather Theory for Pilots



# Weather Theory for Pilots

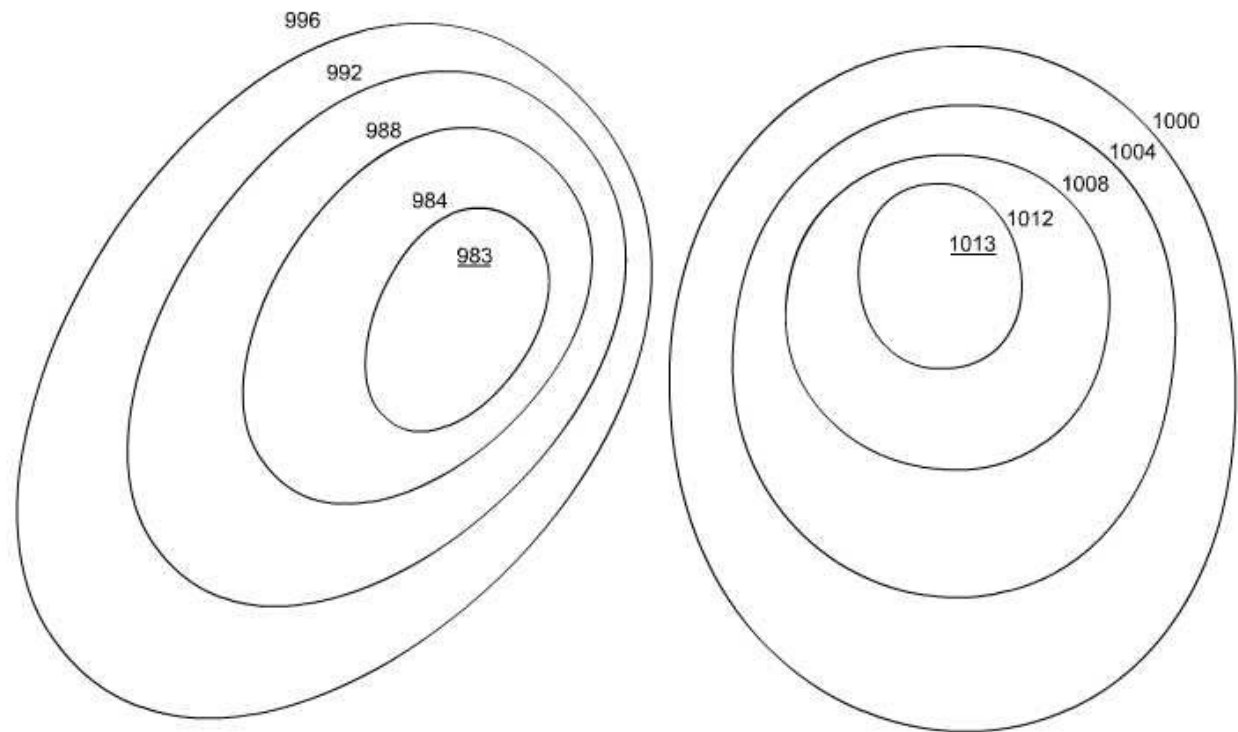
## Introduction





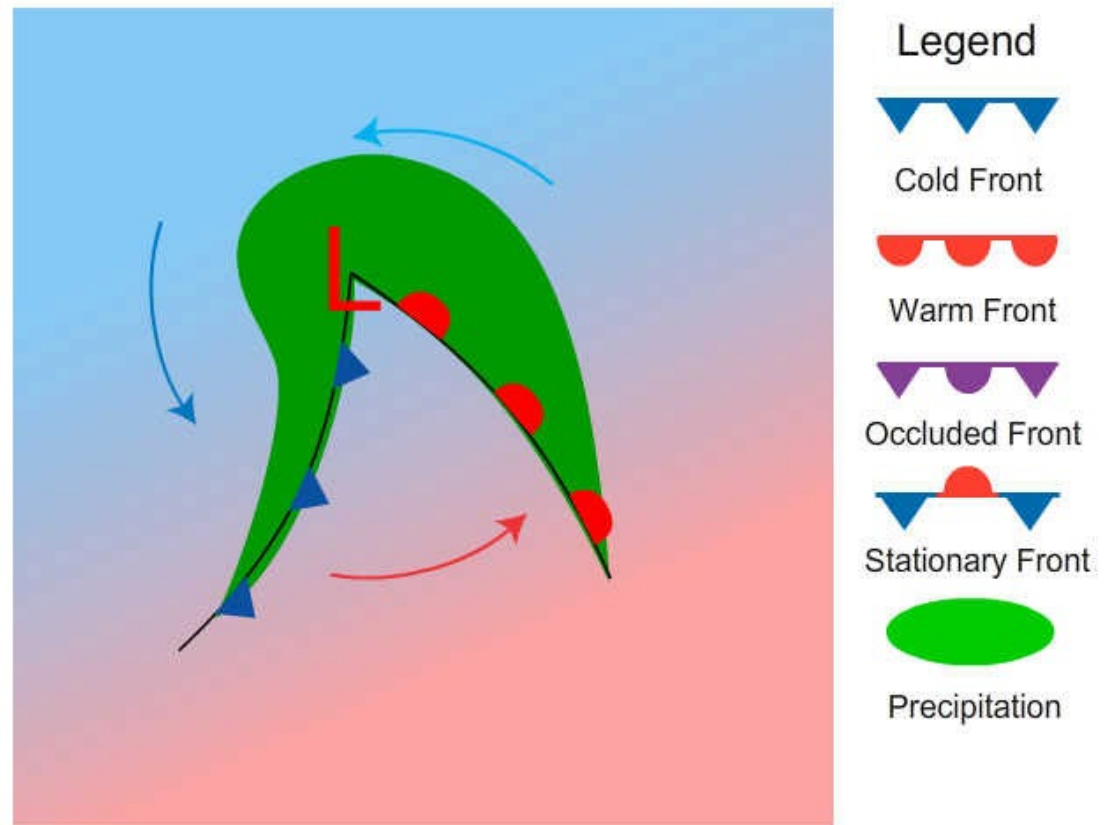
# Weather Theory for Pilots

## Convergence/Divergence



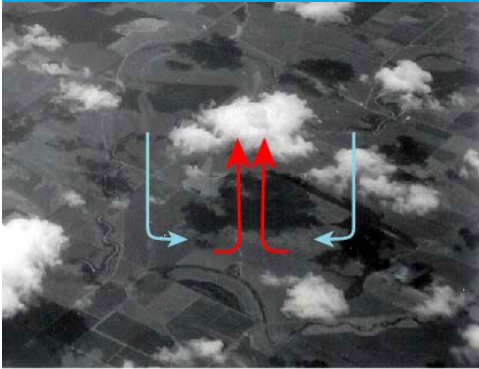
# Weather Theory for Pilots

## Fronts/Drylines



# Weather Theory for Pilots

Convection/Warm- Cold-Air Advection





# Weather Theory for Pilots

## Upslope/Downslope

**intermountain region**—The area of the western United States, west of the Rocky Mountains and east of the Sierra Nevada Mountains, which includes Idaho and Arizona.

**rain shadow**—One effect of terrain is “rain shadows.” This predominately occurs in the west. Pacific storms shed most of their moisture over the Cascades of Washington and Oregon, and Sierra Nevada of California. This results in semiarid climates east of these mountain ranges.



# Weather Theory for Pilots

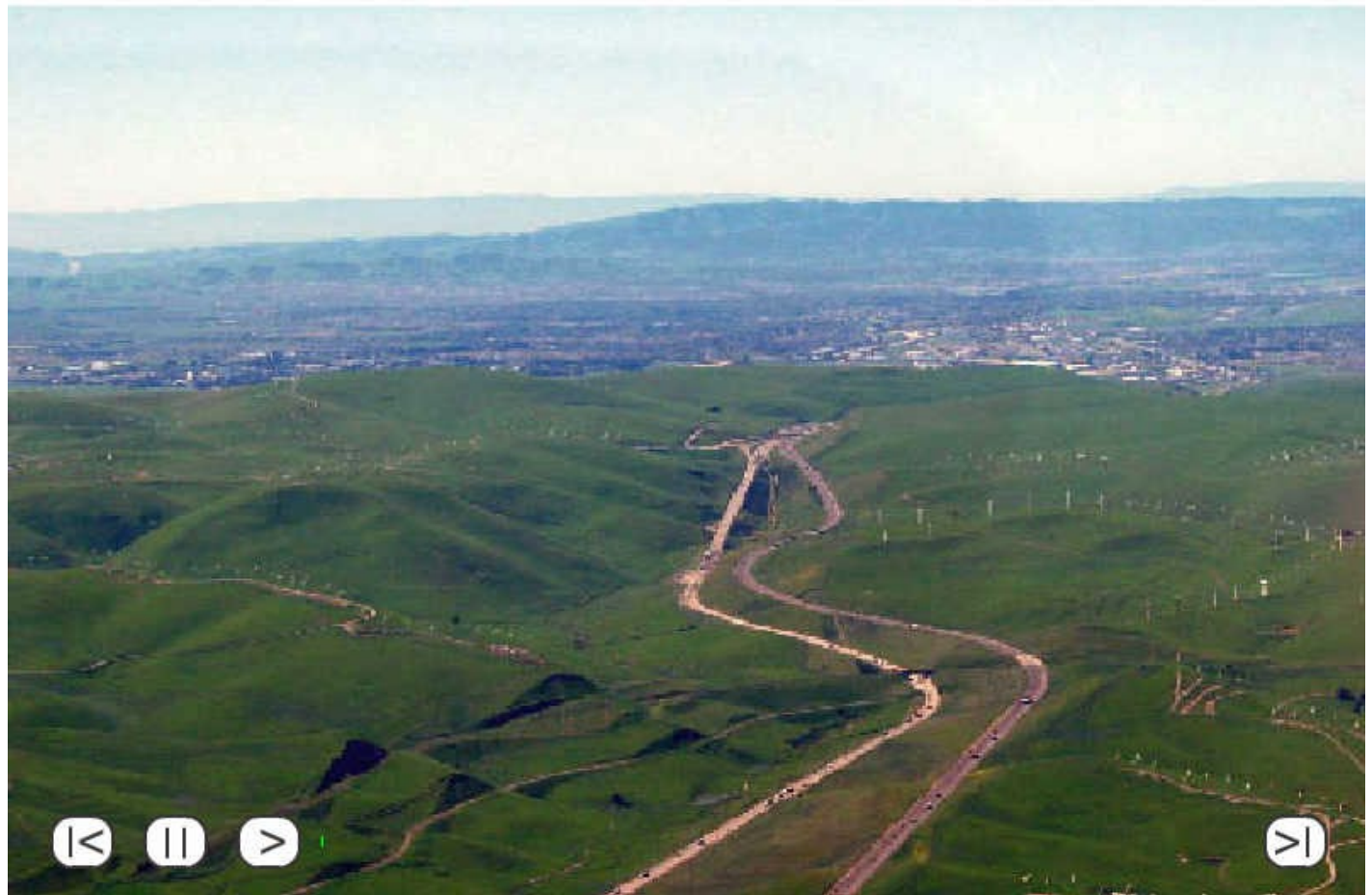
## Determining Areas of Vertical Motion



# Weather Theory for Pilots

## Introduction

Don't become overly concerned about this discussion of stability, it's background information that will help your understanding of the "weather equation" and the material in subsequent blocks and modules.

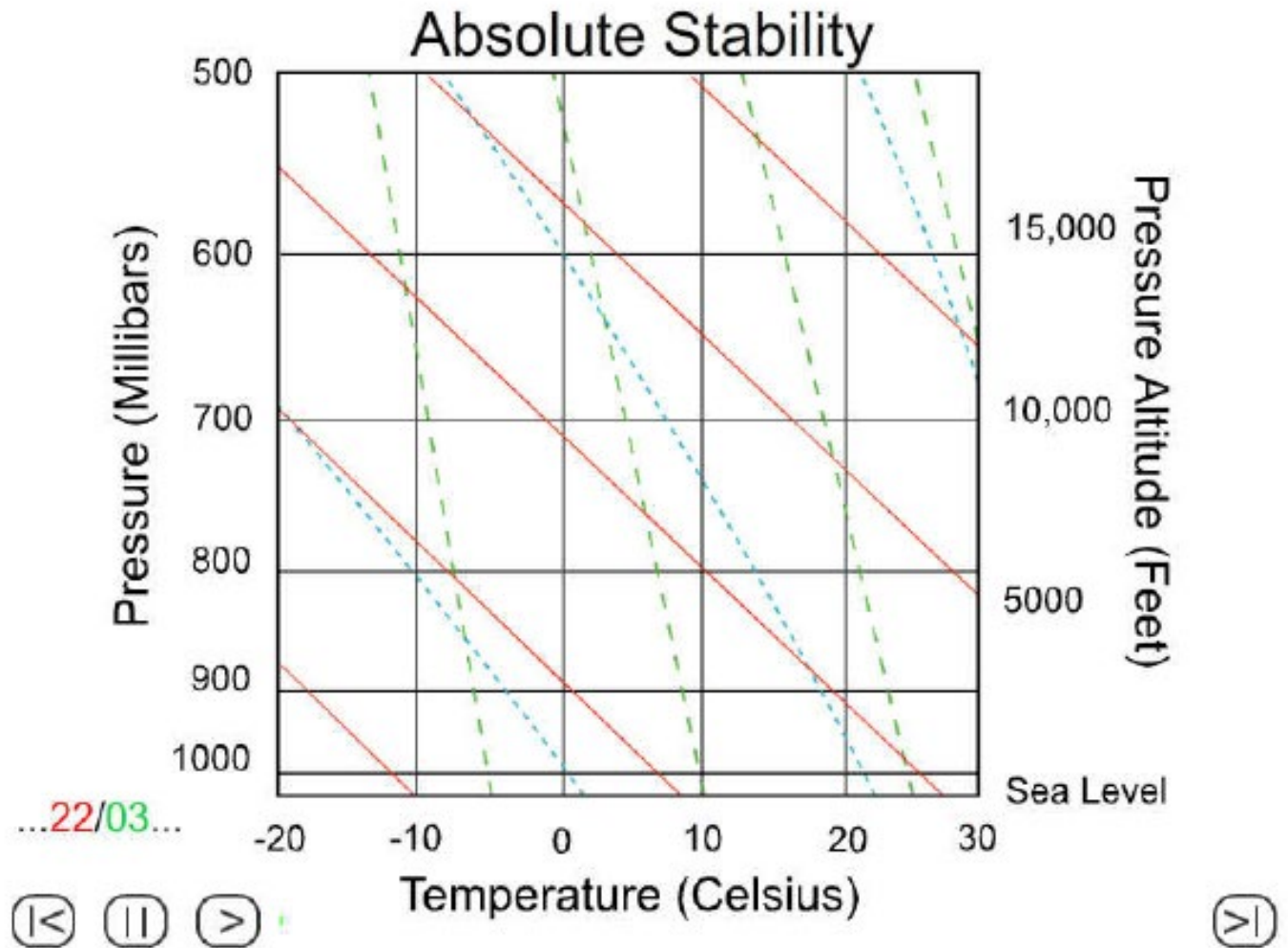


# Weather Theory for Pilots

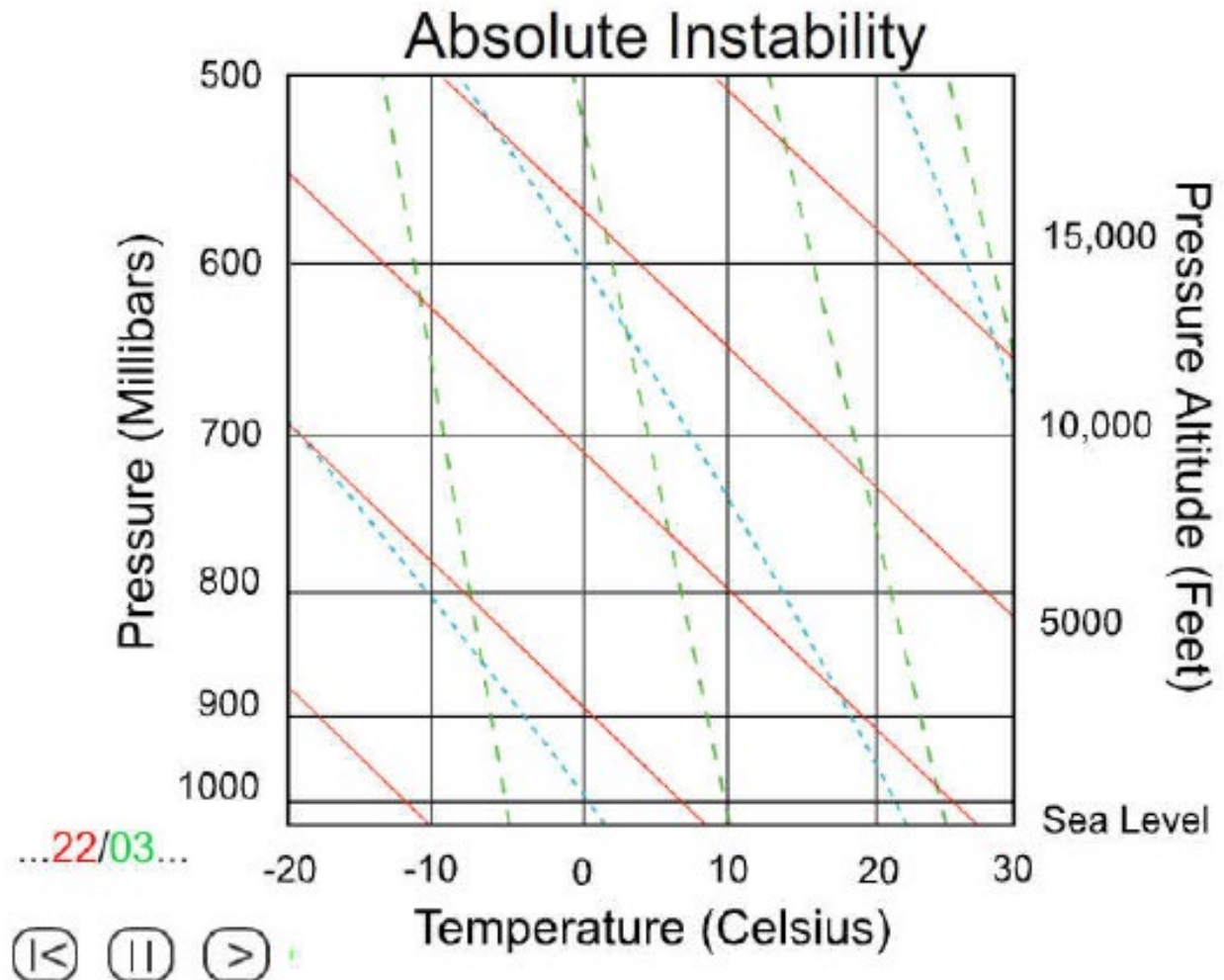




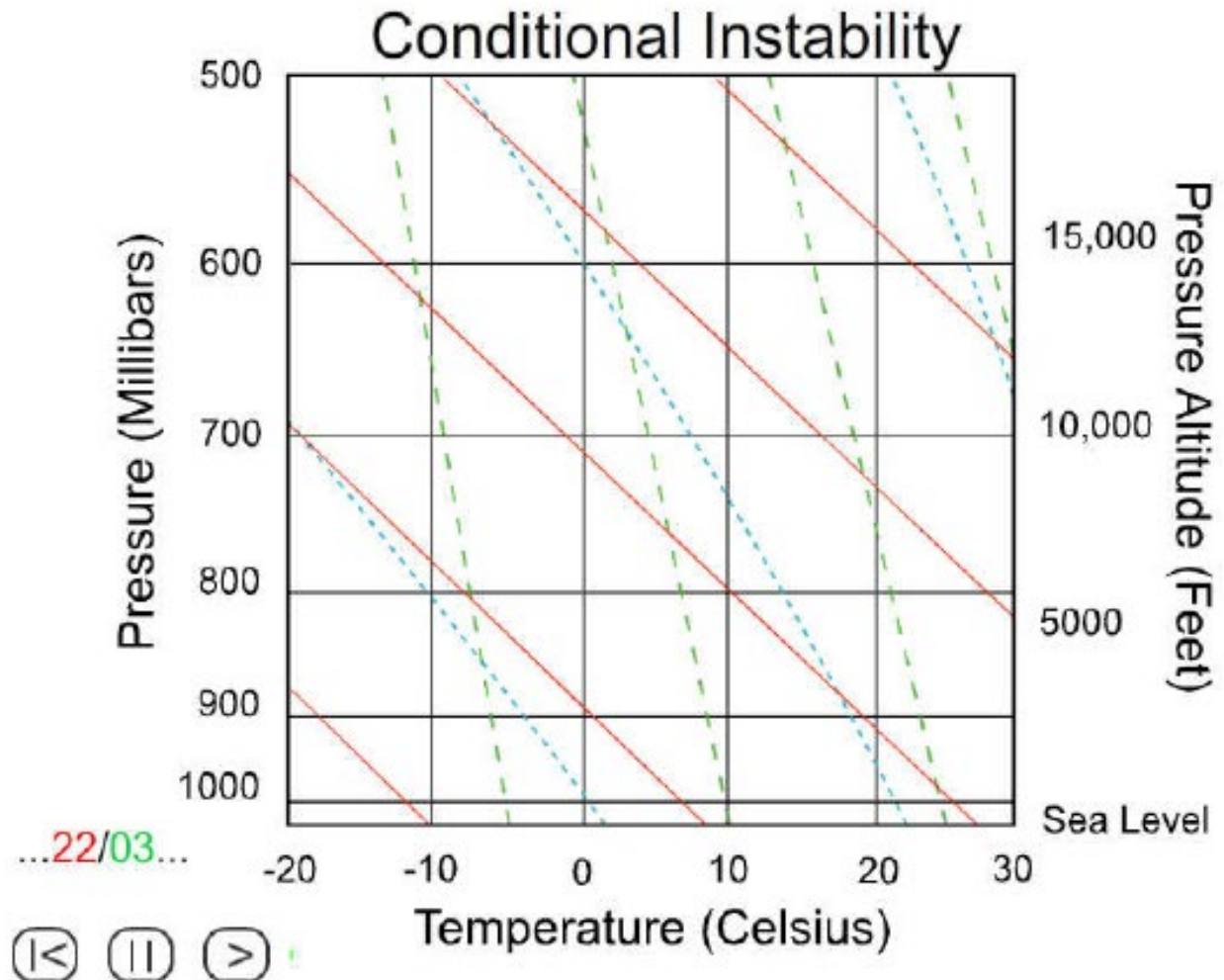
# Weather Theory for Pilots



# Weather Theory for Pilots



# Weather Theory for Pilots



# Weather Theory for Pilots

## Vertical Motion vs. Stability

### Convection



Stable



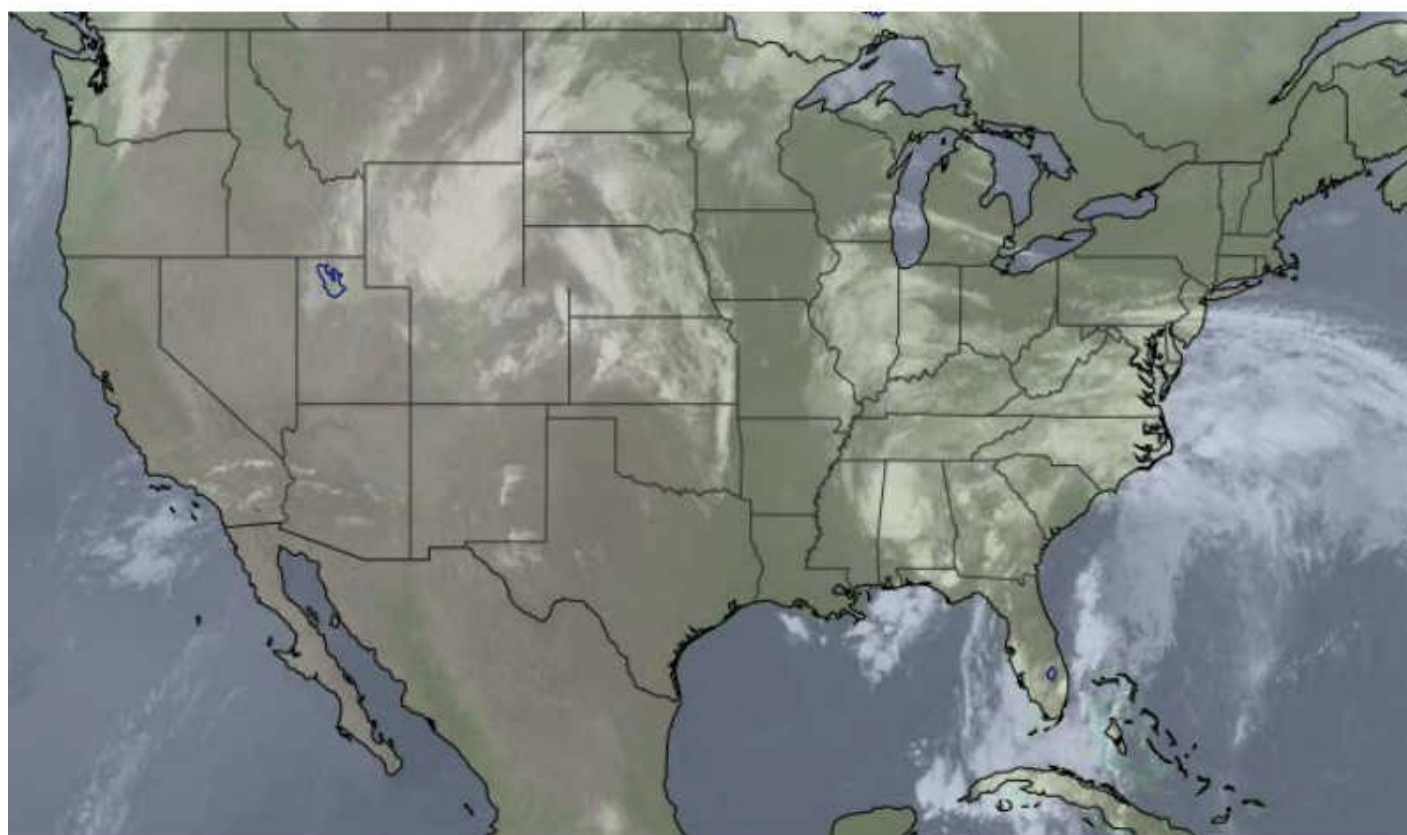
Unstable





# Weather Theory for Pilots

## Determining Stability



# Weather Theory for Pilots

## Acknowledgements

The mission of the National Weather Association ([www.nwas.org](http://www.nwas.org)) is to support and promote excellence in operational meteorology and related activities. To accomplish this, the Association's objectives are: (1) to provide a medium for all persons interested in weather, including climate, forecasting, observations, observational systems and related research and development for the publishing of letters, pamphlets, periodicals, papers, and Web pages concerning activities in said fields; (2) to provide information, publications, materials, and seminars that will promote forecasting, analysis, observations, training, and education in the meteorological disciplines.

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