

# Fly Higher – Fly Longer

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mm/dd/2012

# Types of Soaring

- ? Thermal Soaring
- ? Ridge Soaring
- ? Wave Soaring

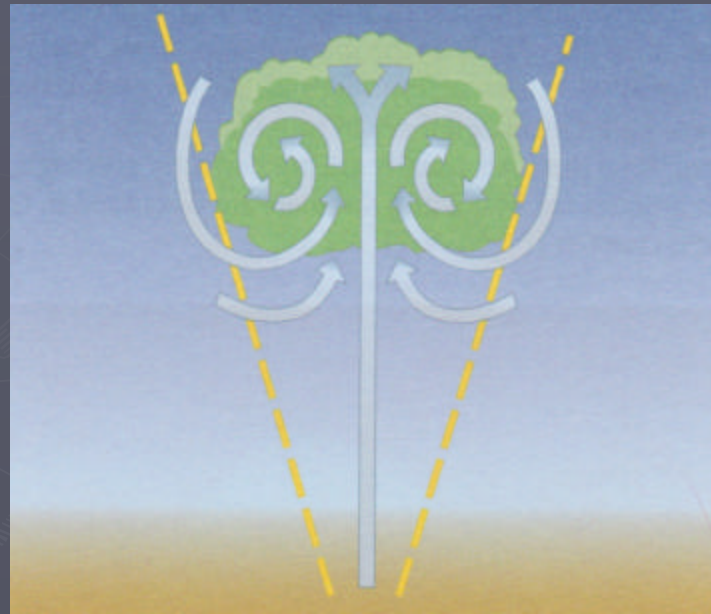
# Thermal Soaring

It's all about hot air rising!

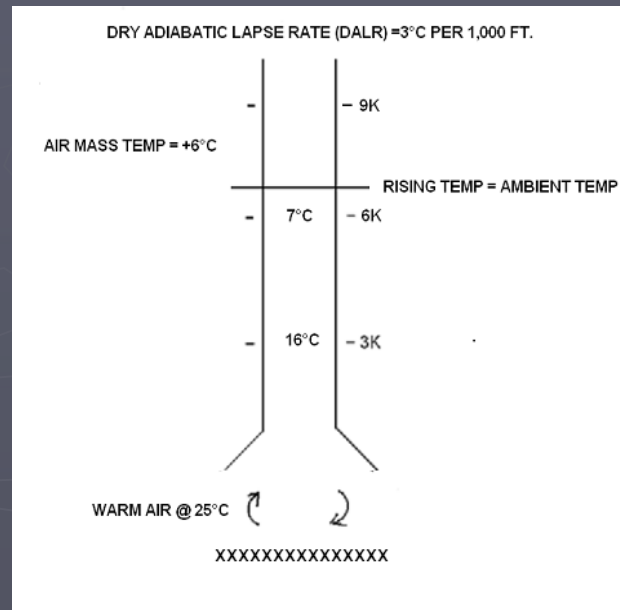
## The Column or Plume Model of a Thermal



## The Bubble or Vortex Ring Model of a Thermal

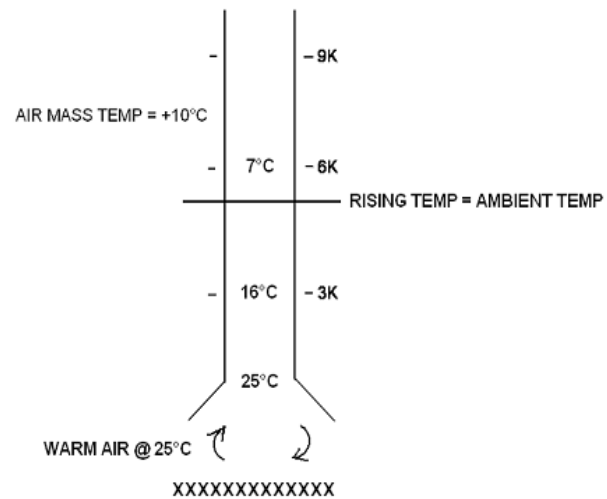


# April 1



# August 1

DRY ADIABATIC LAPSE RATE (DALR) = 3°C PER 1,000 FT.

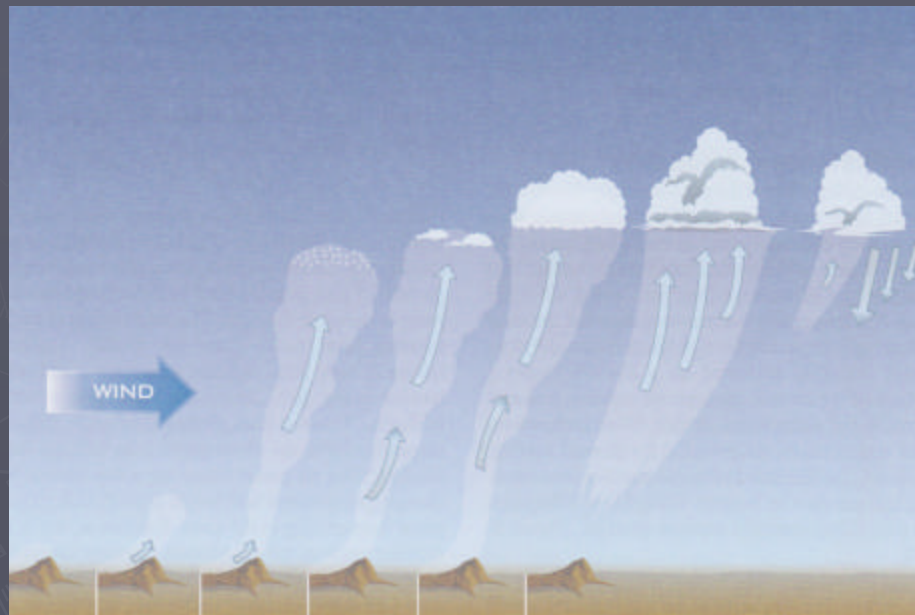


## Thermal Creation – How/Where It Starts

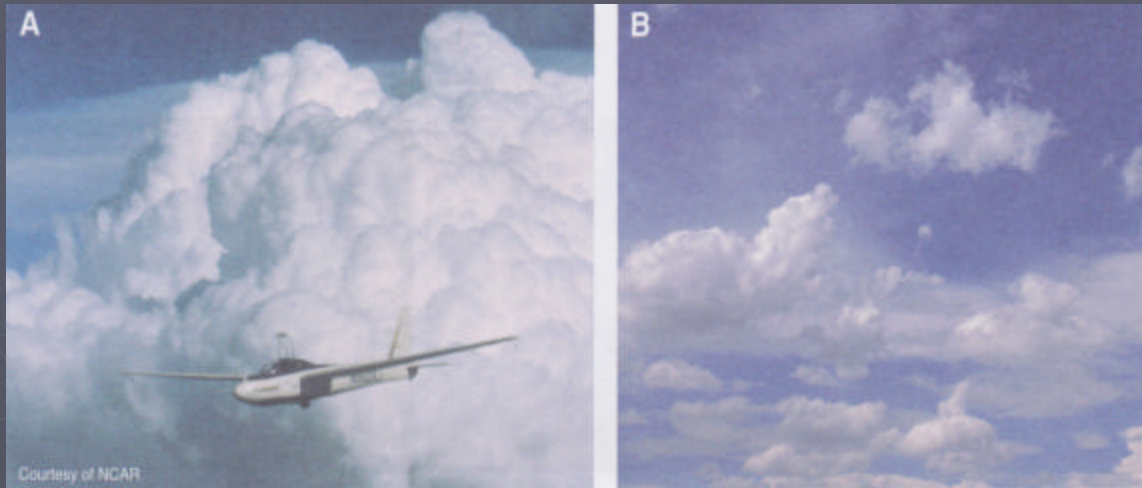
- ? Plowed farmer's field
- ? Green grass
- ? Rocks – lots of them
- ? Paved parking lots/industrial building roofs
- ? Ponds/lakes



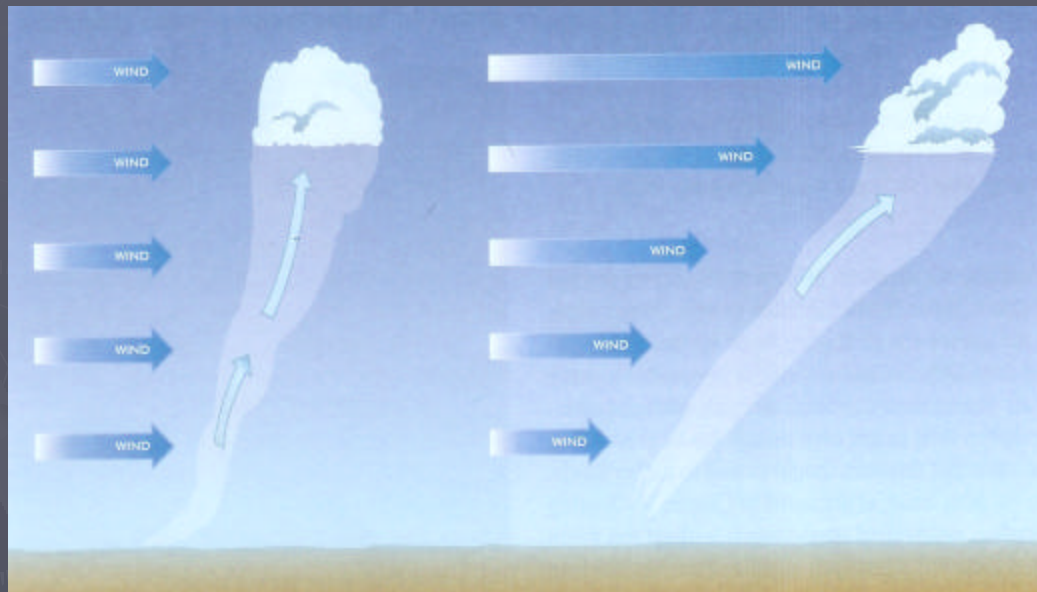
## Life Cycle of a Typical Thermal with Cumulus Cloud



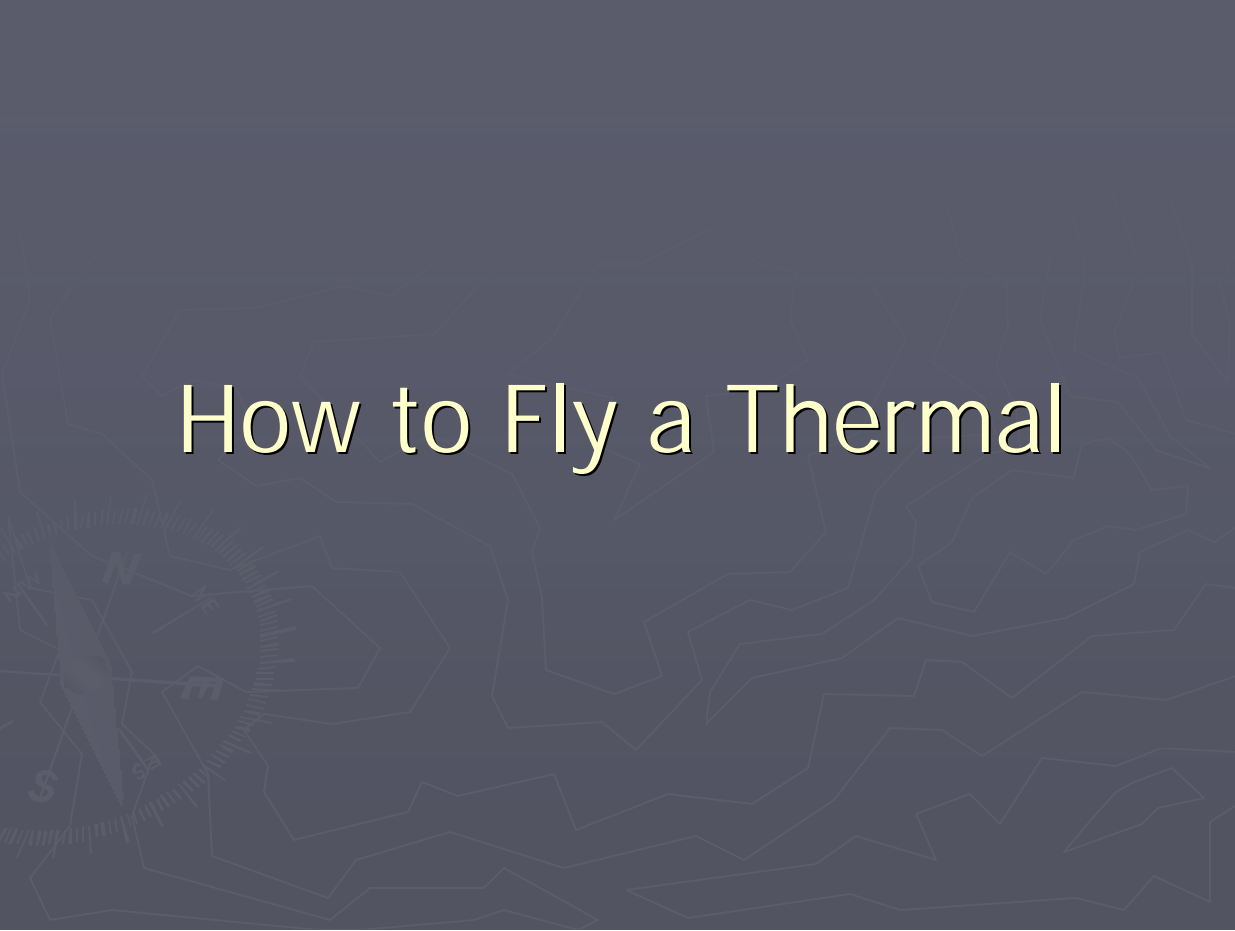
(A) Mature cumulus likely producing good lift, (B) Dissipating cumulus



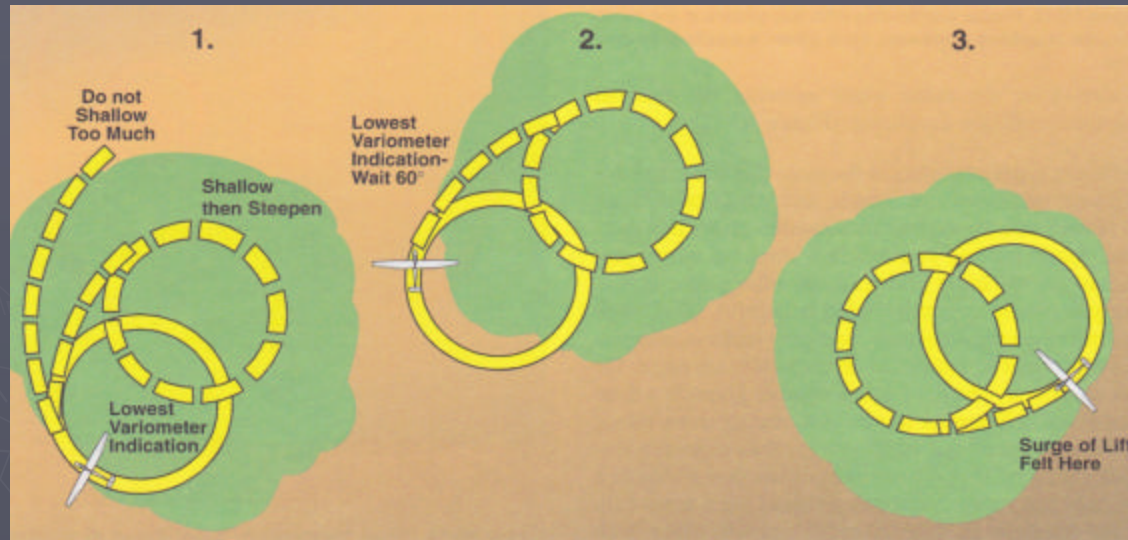
Thermal Tilt in Shear That (a) Does Not Change With Height, and that (b) Increases With Height



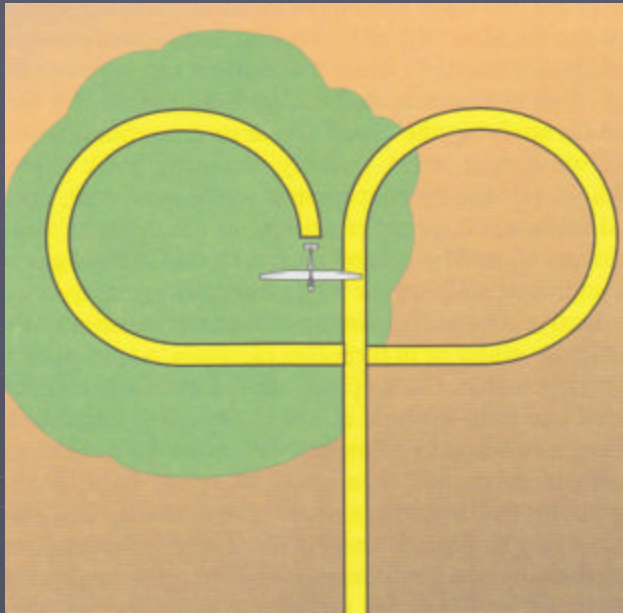
# How to Fly a Thermal

The background of the slide is a dark blue-grey color. It features a faint, light-colored graphic of a compass rose on the left side, with the letters 'N', 'E', 'S', and 'W' visible. To the right of the compass is a series of concentric, irregular lines representing topographic contour lines, suggesting a map or a flight path.

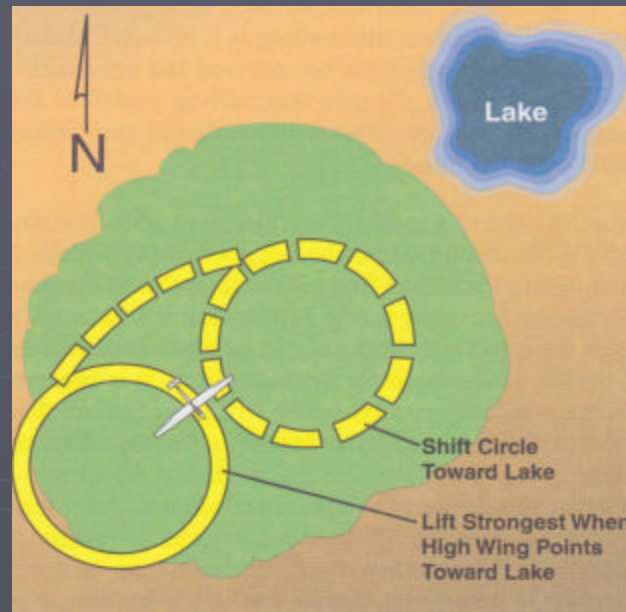
# Centering Corrections



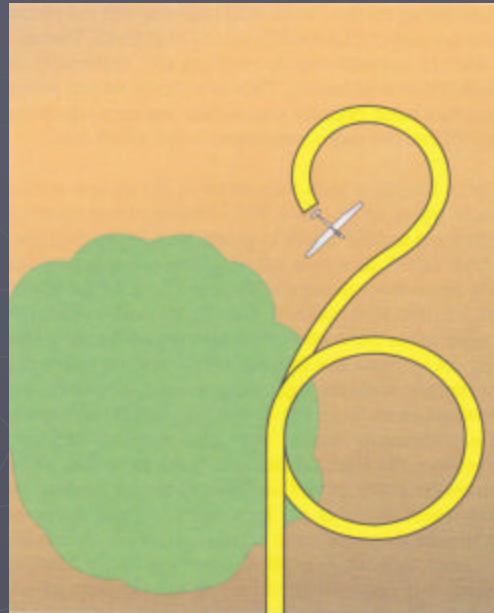
# The 270° Centering Correction



# Centering by Shifting the Circle Turn Toward Stronger Lift



## Possible Loss of Thermal While Trying to Reverse Direction





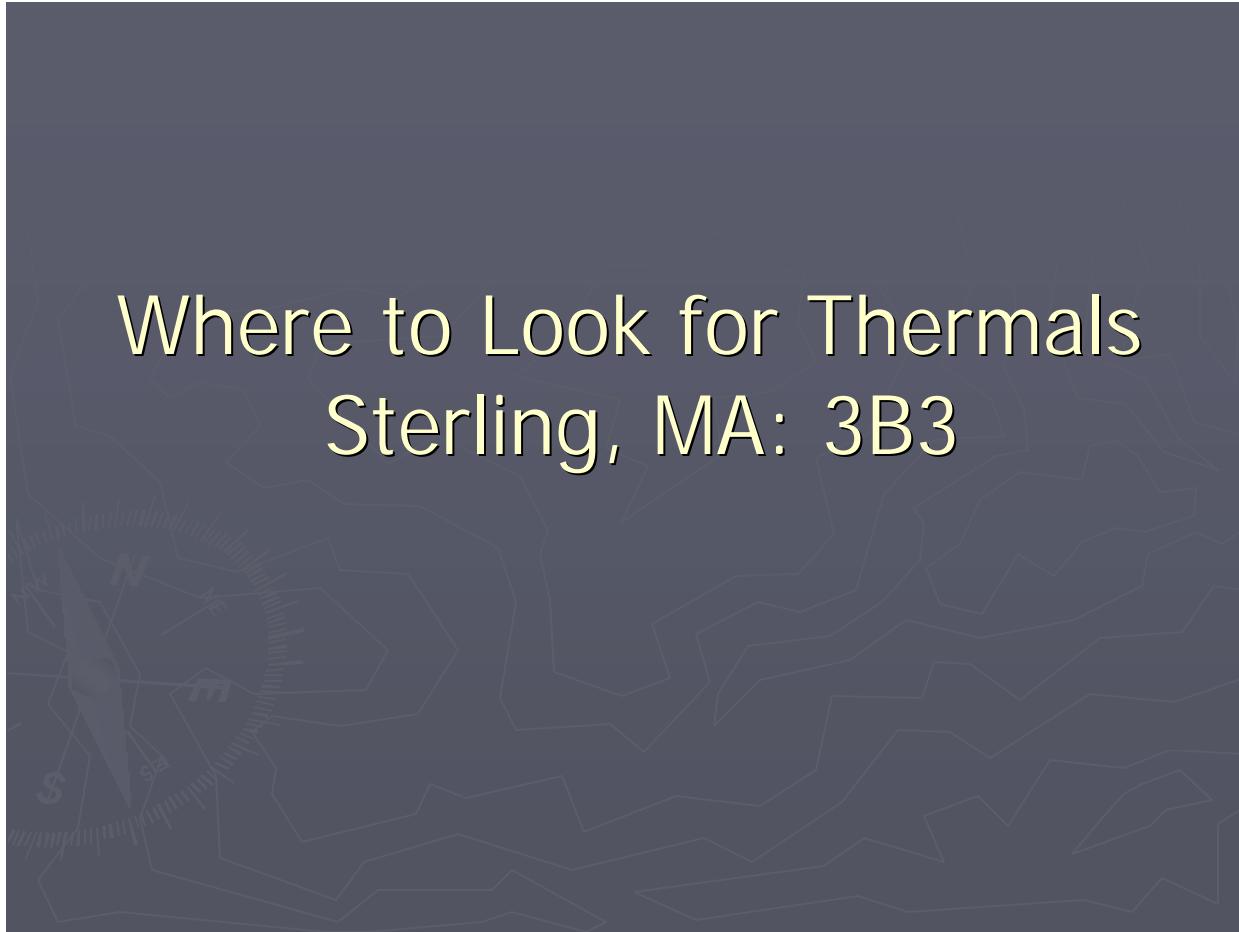
## Transitioning From One Thermal to Another

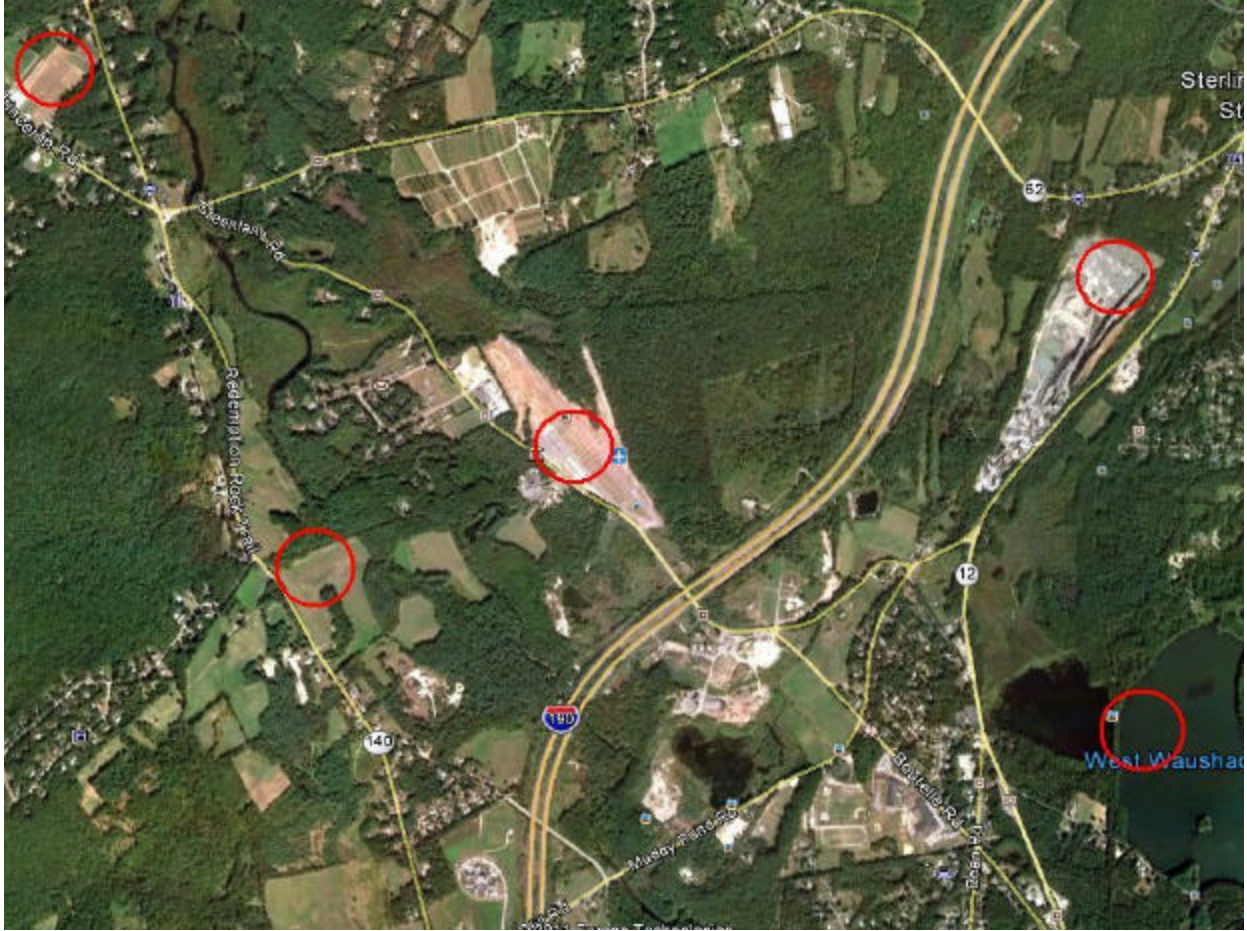
### ? Speed-to-Fly (e.g., Puch)

- $V_{min\ sink}$  = 40 kts (46 mph)
- $V_{best\ L/D}$  = 46 kts (53 mph)
- $V_{get\ out\ of\ here!}$  = FAST!

# Where to Look for Thermals

## Sterling, MA: 3B3

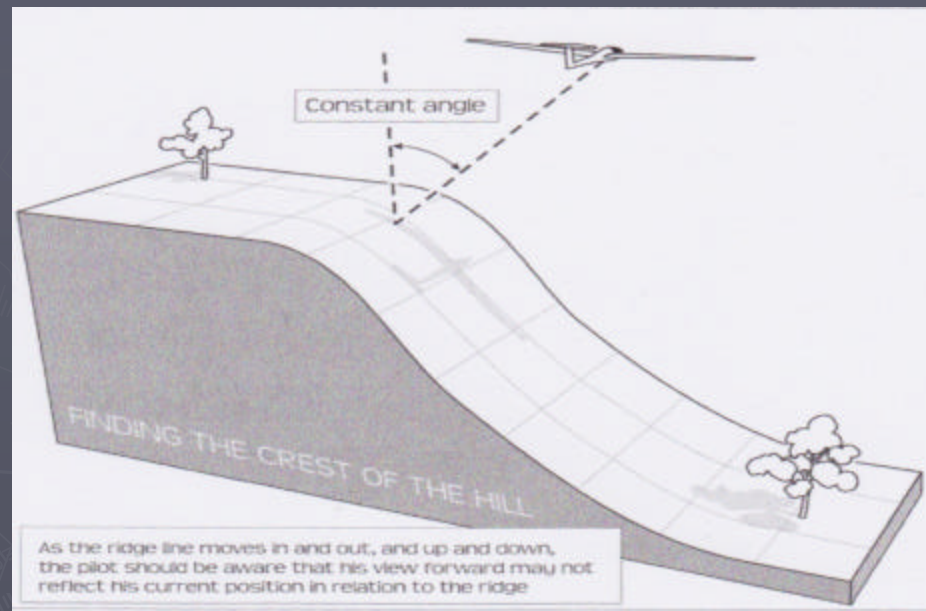




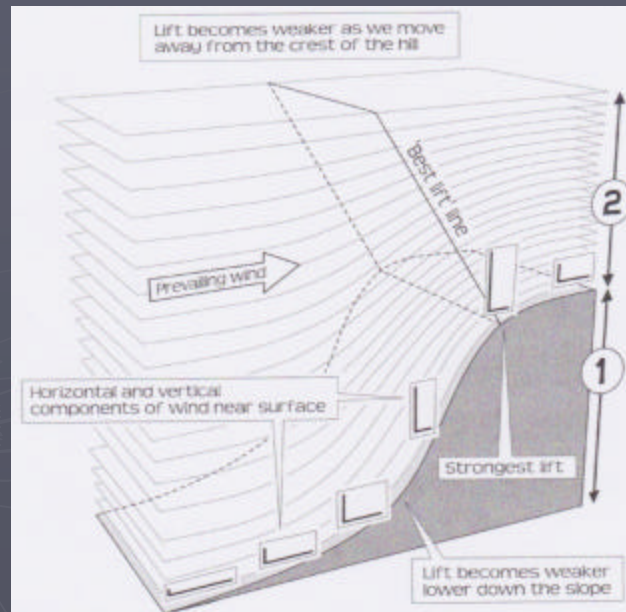
# Ridge Soaring

- ? How to approach the ridge
- ? The ridge rules
- ? Avoiding sink
- ? Thermalling

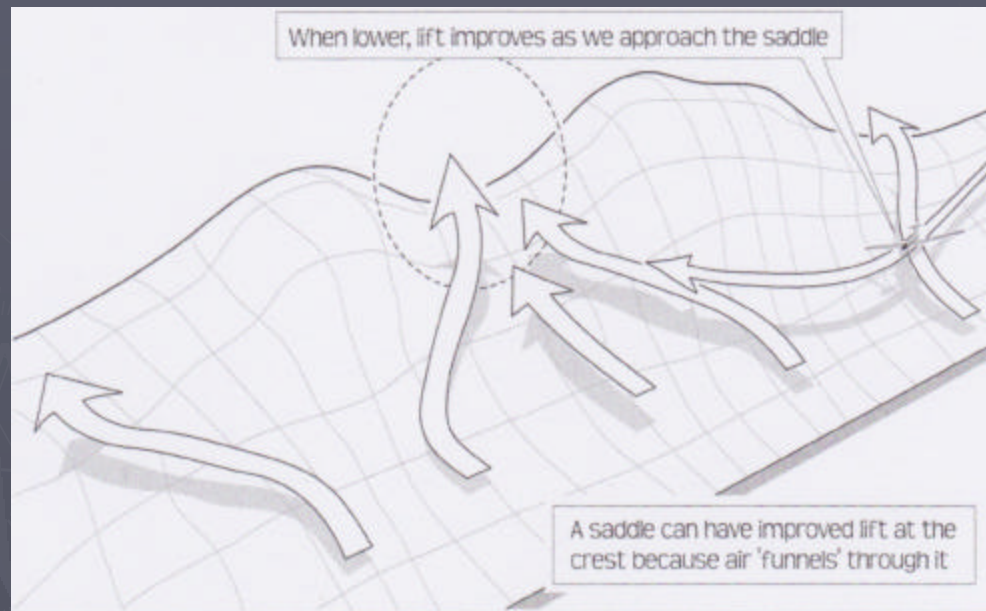
# Finding the crest of the hill



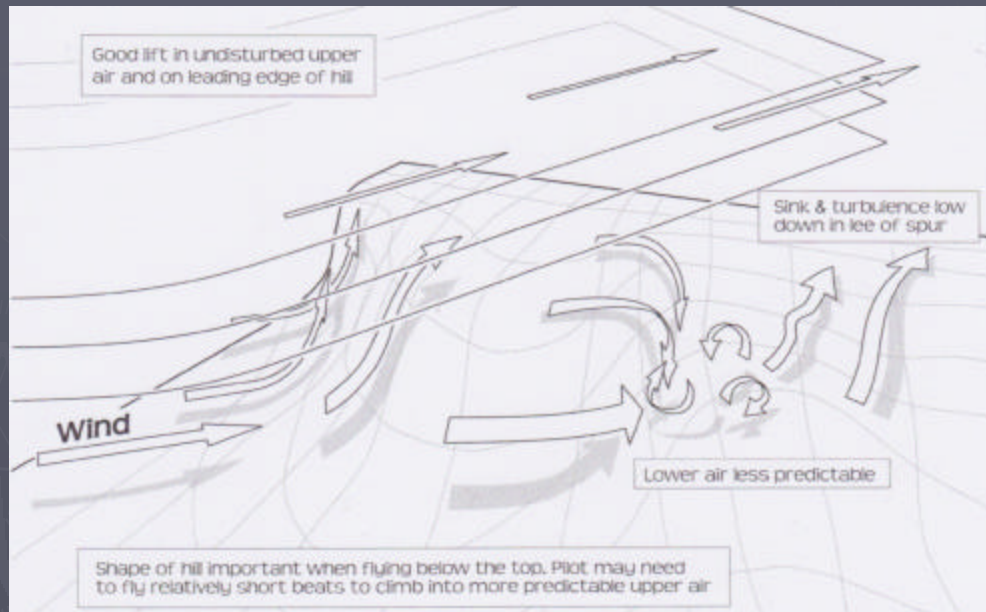
# Location of best lift



# Improved lift at saddle



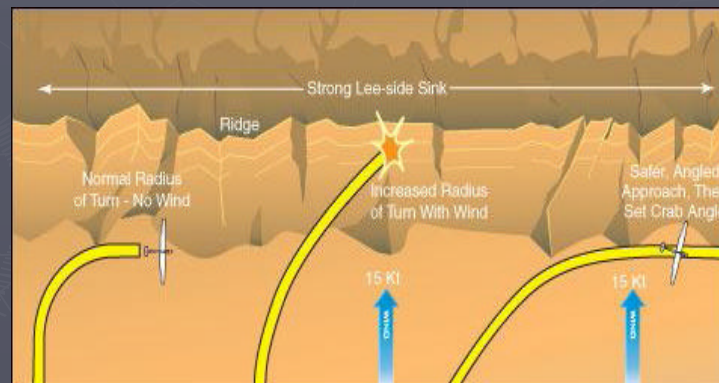
## Note the shape of the hill





# Approaching the Ridge

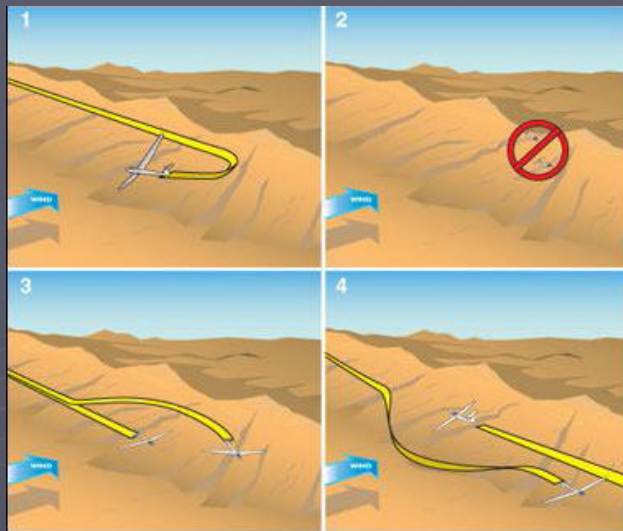
- ? Avoid approaching from the upwind side perpendicularly to the ridge.
- ? Approach the ridge at a shallower angle that allows quick egress away from the ridge.



## Ridge Rules

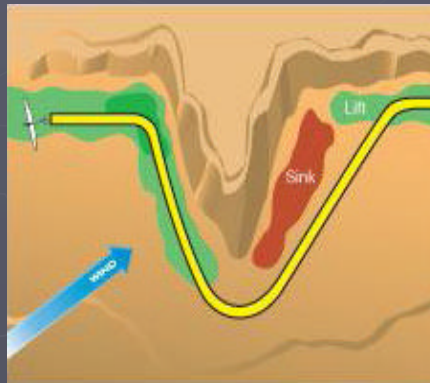
- ? Make all turns away from the ridge.
- ? Do not fly directly above or below another glider.
- ? Pass another glider on the ridge side.
- ? The glider with its right side to the ridge has the right of way.

# Ridge Rules



## Avoid Downwind Side Sink

- ? Avoid sink on the downwind side of spurs by detouring around them:



# Franconia Ridge



## Working Thermals From Slope Lift

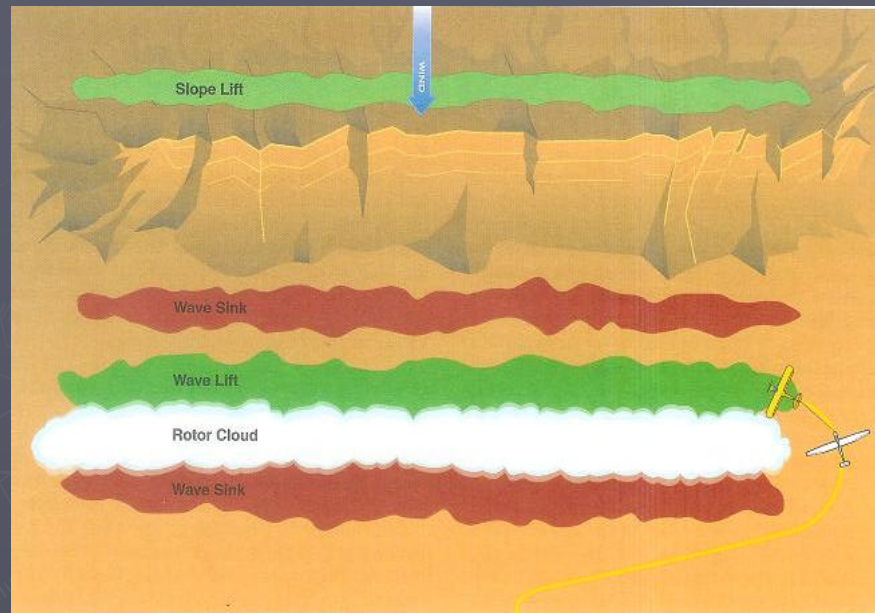
- ? Catch a thermal by flying upwind away from the slope lift:



# Wave Soaring

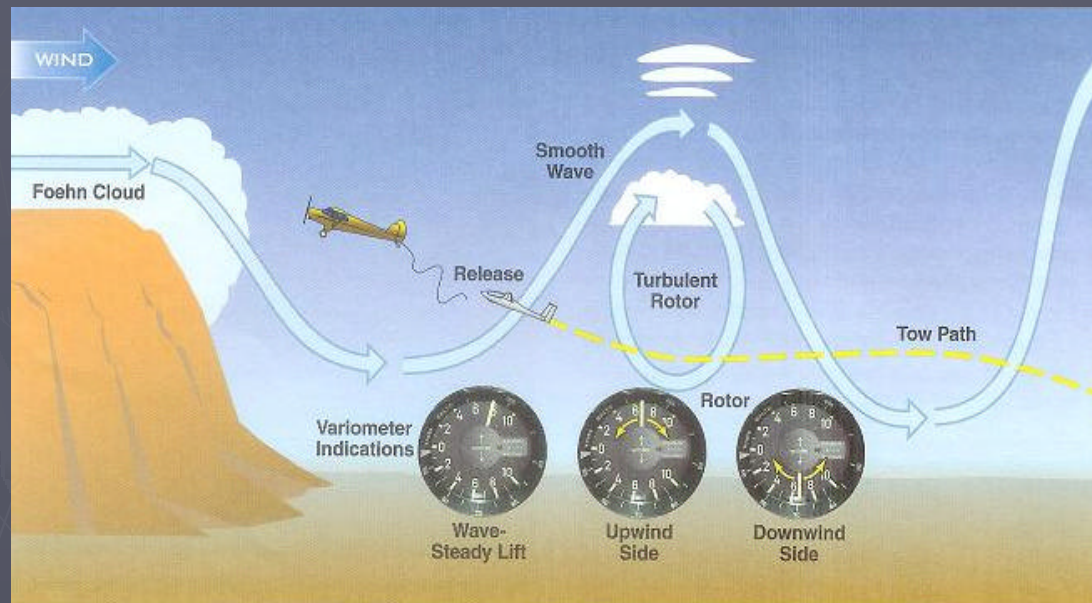


If possible, tow around the rotor directly into the wave

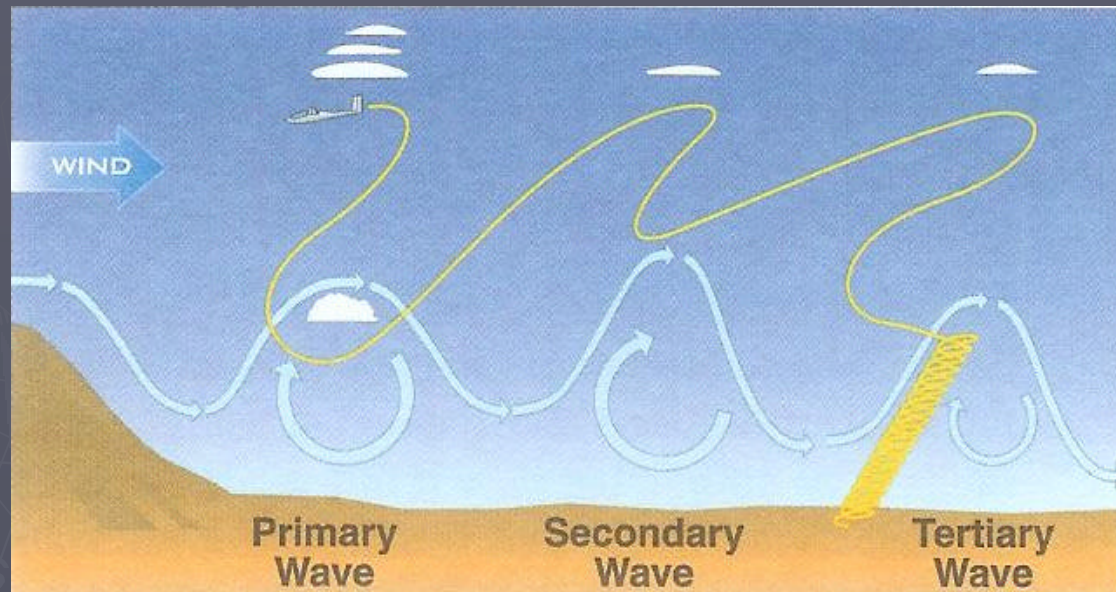




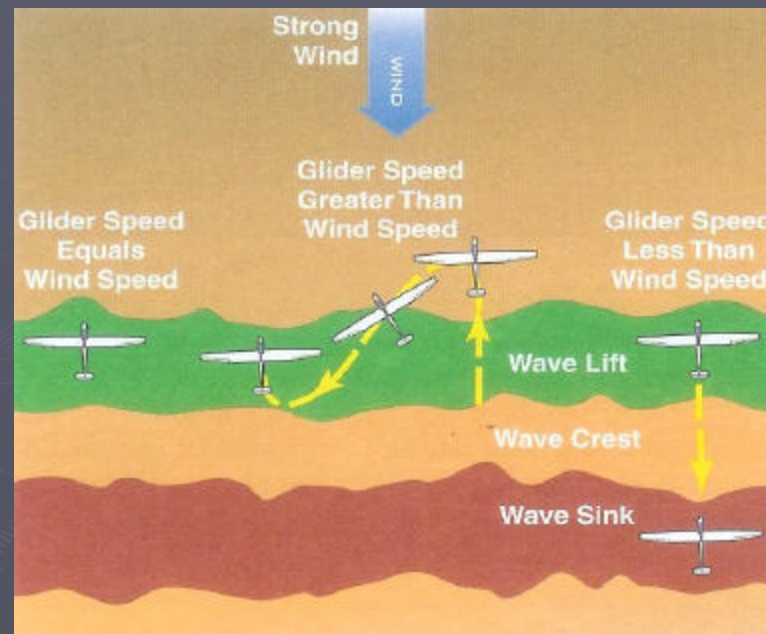
# Variometer indications during the penetration into the wave



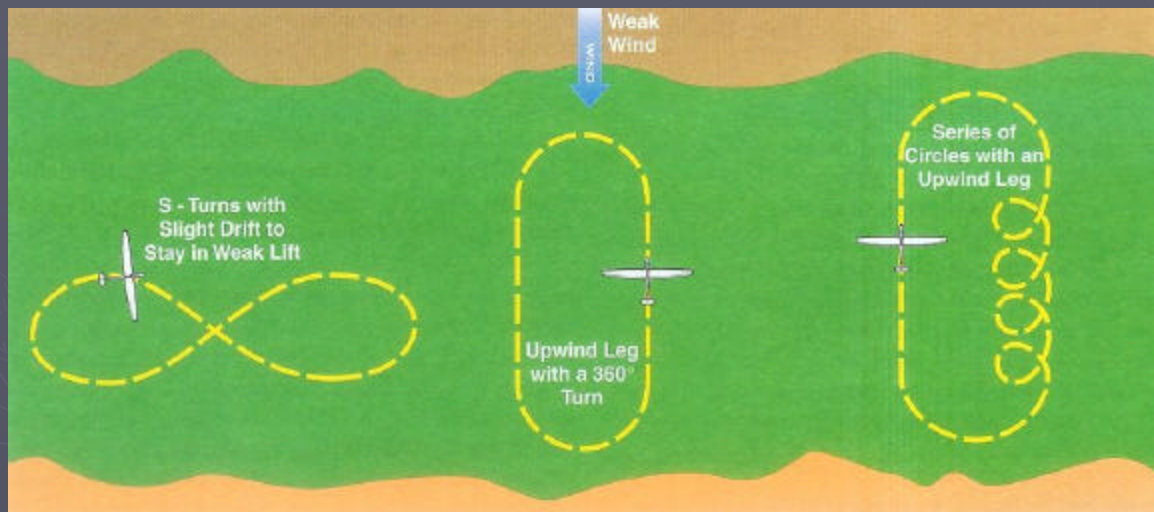
Possible flight path while transitioning from the tertiary into the secondary and then into the primary



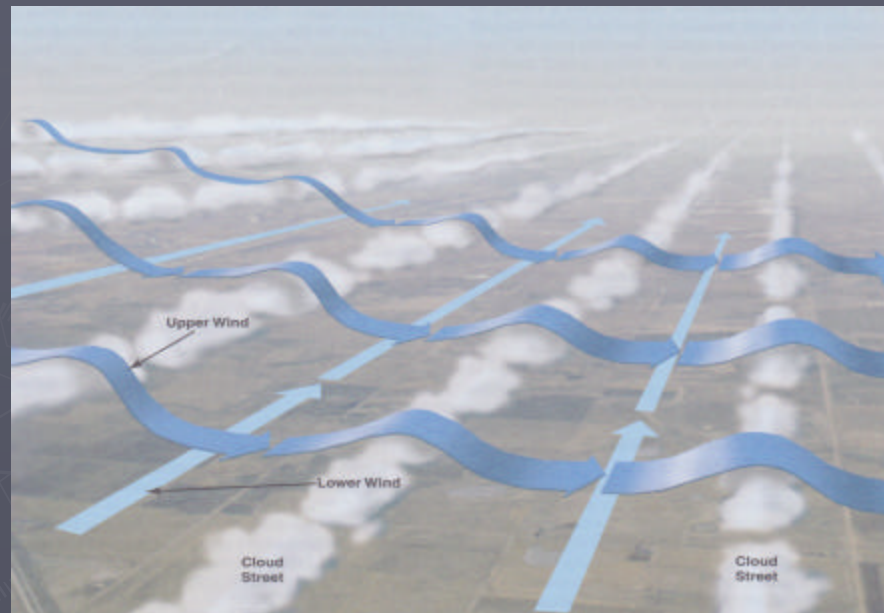
# Catching a thermal by flying upwind away from slope lift



# Techniques for working lift near the top of the wave in weak winds



# Cloud street wave



The End

