



# The Dangers of Low Altitude Thermaling

John J. Scott

# The Dangers

---



Unlike other talks, this one is more Qualitative than it is Quantitative.

It is based on the experiences of senior pilots who know that something is a Bad Idea but who have difficulty explaining why.

# The Dangers

---



Low altitude thermaling is a really good way to get yourself into trouble.

“Low” means 300-800 feet; less than Traffic Pattern Altitude

**Lift down low is:**

- ✓ *Smaller*
- ✓ *Gustier*
- ✓ *Poorer Quality*
- ✓ *Less Reliable*

# Low Altitude Regime

---



**The low altitude regime holds unique and undesirable characteristics that are not found at higher altitudes.**

- *Wind induced turbulence.*
- *Low level wind shear.*
- *Large numbers of gusts and eddies that might feel like lift, sucker you into a turn, and then become sink or tailwinds.*

# Low Altitude Regime

---



Ground illusions are strong!

The downwind illusion is especially dangerous.

# “Gust Trap”

---



- ❖ You are heading into a headwind.
- ❖ Gust hits!
- ❖ Glider rises; vario chirps; feel “G” forces.
- ❖ It’s a thermal, so you turn 180 degrees.
- ❖ Gusts stops!
- ❖ You are now downwind with 20 Kts less airspeed.
- ❖ Nose points down due to loss of airspeed
- ❖ You pull back      **You are now setup for an accident!**

# Low Altitude Maneuvering

---

- ❖ Thermaling “save” has failed.  
At some point you “finally” come to that conclusion.
- ❖ You are starting a “pattern” at 300 feet and you are slow.
- ❖ Don’t call it a “Pattern”; You’re in Survival mode.
- ❖ Lowering the nose is psychologically hard to do.
- ❖ Wild maneuvers to reach the field.
- ❖ Stress level is high; mistakes get made.
- ❖ **You are now setup for an accident!**

# Not so Simple

---



It is believed that low altitude accidents are not “simple” stall/spins as might occur at altitude, but rather, are the result of more complex and confusing situations that results from those unique characteristics that are only found in the low altitude regime.



# The Dangers

---



Trying to thermal below 500 feet is less likely to work because the thermals are smaller and because of other unique low altitude phenomenon.

The new danger is that the saving attempt will fail and will lead to a low, tight, slow pattern that sets up a stall/spin scenario.

# The Prevention

---



Establish “Personal Minimums”.

In this case a “hard deck” criteria below which you will not continue.

This decision is “Pre-Made”.

Below a certain altitude (800-1000 feet) you will accept defeat and commit to landing.

# The Prevention

---



Get your thinking and planning done.  
You know that this “save” might not work!

Have your landing area already picked out.  
What’s the wind direction?  
Is it downwind of your current location?  
Free of obstructions?  
What pattern will you fly?

# The Prevention

---



**Don't be Stupid !**

# The Dangers of Low Altitude Thermaling

**THE END**