Safety in Mountain Flying

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Ridge Flying

This talk is about both Mountain and Ridge flying.

Here, our ridges are the faces of mountains.
Ridge Flying

We tend to associate “Ridge” flying with the orographic effect of wind being lifted upward by a mountain or ridge.

But sometimes, with just a slight amount of wind, we will feel valley thermals being pushed against the ridge face and then experience combined orographic and thermal lifting.

Even with no wind, significant thermal lift may be generated at the base and along the face of the mountain and following the gullies upward.

There are multiple reasons to “Fly the Ridge”
Beware the Dangers

The “West” has a higher incident rate of people hitting mountains.

Although none of these people intentionally hit the mountain, all of these people intentionally got close.

More susceptible to rough air, gusts, and sink.

- Close to ground; both laterally and vertically
- Flying at slower speeds
- No proper horizon
- Stronger visual illusions
The harder the wind is blowing … the more important these precautions !!

**Precautions**

- Maintain extra speed (55+ to 70 Kts; Best L/D)
- Always have an escape plan; be ready to “BAIL”
- Approach at shallow angles (30-45 degrees)
- Climb using “Out & Return” or “Figure 8” maneuvers
- Maintain visual vigilance – eyes outside
- “Circling” below the ridgeline may be a bad idea
- Fly coordinated; Trust your instincts on proximity
Precautions

Always turn away from the mountain.
Use O&R or Figure 8 maneuvers to turn.
Precautions

Don’t drift downwind of the crest.
Precautions

As the winds get stronger, the Lee Side gets more dangerous. Rotor, turbulence, and downdraft may await you.
Precautions

- General wind
- Angle ≥ 35°
- Minimum height 60 m above the ground
- Beware of the plateaux
- One must always see the crest
Substitute Horizon

The presence of a mountain prevents you from seeing the true horizon.

The absence of a horizon can lead to “fixation” on improper visual references (mountain features, wing tips, vicinity of the wall). This can lead to uncoordinated flight or improper pitch/bank attitudes.

Need to generate a “substitute horizon” which is a mental image of where the horizon would be if you could see it. Done by using visual references that exist in other parts of your 360º view and then extrapolating the image.
Oxygen

Remember the rules?
• > 14,000’; Required
• > 12,500’ + 30 minutes; Required

These are the legal requirements. Many people turn on their oxygen at 10,000’ to be prudent.

These altitudes are not hard to achieve at Air Sailing!
Collision Avoidance

Right of Way Rules

*FARs and Ridge Rules are not the same !!*

Do Not Stay in the Blind Spot of another glider
(Remember, he might decide to “Bail”)

Eyes outside 95% of time

Clear your turns
Collision Avoidance

FARs --- Overtake slower traffic on the right.
Collision Avoidance

FARs --- Yield to converging traffic by turning to the right.
Collision Avoidance

Ridge

You can’t pass left (mountain side).
You can’t pass right (outside).

You can’t pass !!
Collision Avoidance

Ridge

Dive !!

Don’t turn right
Don’t turn left
Don’t climb
Collision Avoidance

Ridge

Dive!!

Don’t turn right
Don’t turn left
Don’t climb
Re-emphasize Checklists

- Assembly
- Positive Control
- Pre-Flight
- Pre-Take Off (Includes belts on and tight!)
- Pre-Landing

ASG’s “Soaring Safety Subjects” has an article on Checklists

The Pre-Landing checklist should be memorized and completed prior to reaching the IP
Take Offs and Landings

While on Tow

- Stay behind the tow plane
- Remember the 2 second rule
- Expect a rough tow; Seat belt tight!? 
- Planned release altitude?
- Remember the 5 second rule
Take Offs and Landings

Winds stronger, gusts stronger, turbulence more pronounced.

Remember your X-Wind techniques

Landings in Strong Winds

- $V_{appr} = 1.5 \ V_s + \frac{1}{2} \ Wind$
- Maintain $V_{appr}$ until the flare
- Expect high GS on downwind
- Expect low GS and steeper angle on final
- Don’t float; spoilers out for landing
- Stay planted; spoiler full & stick back
Landing Patterns

High Wind Base Leg
Reduce by \( \frac{1}{4} \) to \( \frac{1}{3} \)
Safety in Mountain Flying

THE END