

Introduction to Slope Soaring

by *Dave Garwood*

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Here is a brief primer about how to get started in Slope Soaring, or “How to throw an RC model off of a cliff and have fun with it all afternoon.” I have included links for more extensive resources in the “Sources” list.

In Slope Soaring, a sailplane is kept airborne when wind blows into the face of a hill or a cliff and the airstream is deflected upward, creating the lift in which our unpowered models are flown. A flight can last an hour or much longer—the aircraft can fly for as long as the wind blows.

The League of Silent Flight (LSF) website has documented pilots who have flown eight-hour flights.

To participate in this seemingly magical form of RC flight, you need the following:

1. A suitable hill, dune, or ridge.
2. Wind blowing into the face of the hill.
3. A suitable sailplane.
4. Slope-flying techniques.

Hill, Dune, or Ridge

Pilots often stand at the top of a hill or ridge and fly the sailplane out over

a valley or beach. Suitable flying hills range from 10 feet to hundreds of feet high. The steeper and taller the slope, the better the lift will be for a given wind speed.

If flying in wooded terrain, pilots need a clearing large enough to see the sky and a place to land the model. Unobstructed terrain or water in front of the hill makes for smoother air. Road access to the top of the hill is a huge plus.

Modelers need to be sure that they have the landowner’s permission to fly on private land. Carrying an AMA card and a copy of the AMA Safety Code might help convince the landowner to allow you to fly there.

The rules for flying in public parks vary and can change over time. It’s good to check with park rangers about the current rules.

Wind

For those starting out in Slope Soaring, 5 to 15 mph wind is suitable. For lower wind speed, long-wing “floater” sailplanes work well. For higher wind speed, fly shorter-wingspan, faster models. Advanced Slope Soaring, including heavy gliders that fly in 40 mph wind,

Slope Aerobatics, Racing, and Combat, are topics for another time.

The National Weather Service (NWS) presents inland wind forecasts three days in advance and marine wind forecasts five days in advance, which is useful for planning trips to coastal and Great Lakes Slope flying sites. There are additional wind forecast websites and smartphone apps, but the ones that I have seen rely on NWS data.

Sailplane

Any sailplane that will thermal will work on a slope. A 60-inch (1.5-meter) Hand Launch Glider (HLG) is a sterling candidate with which to start. If you are competent in launching, flying, and accurately landing an HLG on the flatland, try it over a gentle slope in 5 to 10 mph wind. Launch out in front of the hill, and if you find lift, keep it out and fly. If there is no lift, circle back to a landing as you do in your flatland HLG practice.

If flying in light wind was fun, next try moderate wind that is 10 to 15 mph. The number of sailplanes that can successfully fly in moderate wind is probably more than 50.

Perusing sailplane manufacturers’

Todd Herbinger, of Mariaville Lake NY, launches a Dream-Flight Libelle HLG along a small inland ridge. An HLG works well as a starter Slope Soaring sailplane.



websites provides detailed aircraft descriptions, photos, and videos. Pilot reviews of these sailplanes can be found on forums such as RCGroups and in print and electronic magazines.

Three molded-foam, quick-to-build sailplanes are working well for five of my RC pilot friends who started out in Slope Soaring this past season. Because of recent experiences, I can confidently recommend three sailplanes from Dream-Flight: the Libelle, Alula, and Weasel.

The Libelle is a starter HLG—a tip-launched glider made from molded foam that is highly suitable for flatland practice and early Slope Soaring exploration. The Alula is a compact and agile “plank” that flies well in many lift conditions. The Weasel is a delta wing that is heavier than the others, suitable for higher wind, and has the more robust lift conditions that pilots tend to crave as they gain experience.

There is a comparison of the characteristics of the three sailplanes on the Dream-Flight website. The instructions for each are clear and complete and include information on the art and science of Slope Soaring.

There are many other foam Slope Soaring sailplanes that work splendidly for beginning Slope pilots. Consider the Zulu from ZupAir, or 48-inch flying wings that are sold by nearly all sailplane suppliers. I know fliers who love their Chevron wings such as the Windrider Bee, Slope Slayer KnifeEdge, and Leading Edge Gliders Prairie Dog.

Technique

Launch your model with a firm toss directly into the wind, with the wings level and the nose pointed slightly down. Let the model fly out into the lift and gather speed. Turn and fly parallel to the ridgeline. Before it becomes too small to see, turn into the wind and fly back parallel to the slope again, crossing in front of yourself. Looking from above, you'll be flying a Figure Eight pattern. When you're comfortable with that pattern, you can begin to explore the limits of the lift zone and add loops and rolls to your routine.

The most valuable lesson for new Slope Soaring fliers is learning how to



Alex Paul, of Nassau, Bahamas, launches a Dave's Aircraft Works (DAW) Foam Wulf over an inland hill at Wilson Lake KS. The water in front of the hill means lower turbulence and smoother air.



Jim Harrigan, of Rensselaer NY, flies a DAW 1-26 foam sailplane in a classic Figure Eight pattern, crossing in front of himself. The photo was taken at White Crest Beach in Cape Cod MA, during the off-season.

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The author with his Dream-Flight Weasel at Ellwood Bluffs, in Santa Barbara CA. The Weasel can be disassembled and placed in its original shipping box for compact storage and transportation.

keep the sailplane out in front of the slope. Pilots find themselves pushing the nose down often to prevent the sailplane from blowing up and away behind them. Behind the edge of the slope is turbulent air called the rotor. It's difficult to control an airplane in this turbulence.

A key concept for RC-powered sailplane fliers to master is that you cannot make a sailplane go up by pulling up-elevator. To go up, you must fly the sailplane into rising air. Pulling up-elevator will stall a sailplane. Avoiding the stall is one of the basic skills to master in glider flying.

In 38 years of flying models, I have not known an RC pilot who tried Slope Soaring and then gave it up. It seems that once bitten by this bug, these aeromodelers want more wind, taller slopes, and just one more Slope Soaring sailplane. 🐛

SOURCES:

ZupAir
wazup@zupair.com
www.zupair.com

Aloft Hobbies
contact@alofthobbies.com
www.alofthobbies.com

Dream-Flight
(805) 845-1803
www.dream-flight.com

LSF
www.silentflight.org

Leading Edge Gliders
(785) 658-6291
www.leadingedgegliders.com

National Weather Service
www.weather.gov

North County Flying Machines
(858) 485-1137
www.northcountyflyingmachines.com

Slopeflyer.com
www.slopeflyer.com

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www.slople.com

Soaring USA
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www.soaringusa.com

Radio Controlled Soaring Digest
www.rcsoaringdigest.com

Slope Slayer
www.slopeslayer.com/wordpress

Wattflyer Electric Flight forum
www.wattflyer.com/forums/showthread.php?t=64613

Canuck Engineering
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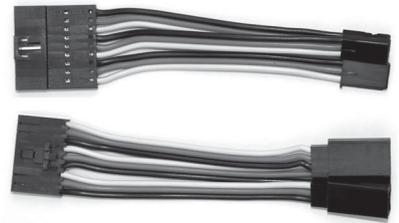
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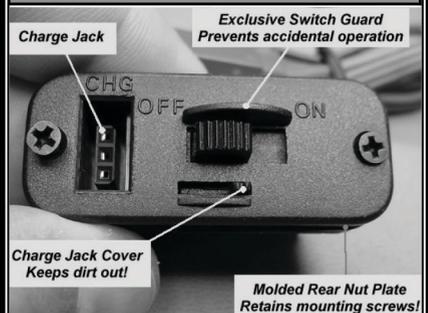
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