

***** **Against the Wind** *****

by: Dave Davis

As winter looses its grip on the Pacific Northwest, the seasons begin to change. As the seasons change, we get wind. As modelers, how best can we compensate for the season changing breezes, which can turn a fun day at the launch site into a living nightmare.

The first way to deal with the wind is by changing the launch angle to fly into the wind and have mother nature blow your rocket back for easy recovery. At a typical Northwest launch, I start at a launch angle of 20 degrees up wind and see what happens. I usually hit the field slightly uprange. I then back off the launch angle to get the bird closer to the pad. One of the fundamental rules of rocketry is: "The more time you spent recovering rockets, means less time spent flying them."

As the launch angle changes, the altitude is reduced. This means that you often have to back off a delay size of your motor. For example if you regularly fly an E15-7 motor in no wind; in windy conditions, you would use an E15-4 due to the reduced altitude. Another option would be to switch to a faster burning motor and keep the delay constant. Rather than use your White Lightning E15-7, your motor of choice would be the Blue Thunder E30-7.

The final option is to change the parachute. Most people put on a smaller parachute to reduce drift. But, that doesn't always solve the problem. Round 'chutes are notorious for drift and the only way to reduce drift is to change the canopy type. The 'chute type I use is the basic X-form parachute from Top Flight recovery or other reliable vendor. These X-form 'chutes reduce drift by 70% regardless of canopy size.

A good rule of thumb to live by is: 1 mile per hour equals 1.47 feet per second. This means that your typical 10 mph spring breeze is blowing at 14.7 feet per second. If your rocket deploys at 1000 feet and descends at 20 feet per second, then it will take 50 seconds for the rocket to reach the ground. At the same time while the rocket is coming down, it is being blown 735 feet down range. If you can reduce the drift rate by 70%, then the drift with an X-form parachute with the same sink rate will only be 220 feet. A definite improvement, and a lot shorter recovery time.

Our safety codes allow us to launch in wind speeds up to 20 miles per hour. Note that is close to 30 feet per second and is a big bunch of drift.

Windy conditions do not have to reduce your flying fun. A little preparation and a little anticipation allow you the opportunity to keep on flying regardless of conditions. Pack a variety of delays and mix of motors and keep a few X-form parachutes in your range box. Launch into the wind and make it work for you.