FOUNDATIONS OF FLIGHT
LONG SPOTS—ENERGY FOOTPRINT (NO WIND)

AXIS Flight School®

Brought to you by Niklas Daniel and Brianne Thompson of AXIS Flight School at Skydive Arizona in Eloy. Images by Niklas Daniel. More skydiving educational content and information about professional coaching services are available at axisflightschool.com.

Last month's column included a skill-building exercise that can help jumpers visually locate the termination of their canopy's glide slope. This month, we pan out to see a slightly bigger picture: a canopy pilot's energy footprint.

The two types of energy available to a canopy pilot are altitude (potential) and speed (kinetic). How a pilot chooses to manage these affects their flying experience. When returning from a long spot, the pilot must find a balance that allows maximization of range. But first, let's look at a model for better assessing landing options, especially when landing out.

In **Illustration 1**, a green circle on the ground encompasses a parachute as seen from above. The edge of the circle represents how far the parachute can travel from that moment in time (from that altitude), including heading changes. The canopy's location within the cycle is fixed at the center based on a no-wind condition. Think of it as a light projection emanating from the canopy pilot and cast onto the surface below.

In **Illustration 2**, the circle continues to move and shrink as the pilot loses altitude over time. Therefore, the greater the altitude, the greater the distance a canopy can cover. The vertical distance between a canopy pilot and the surface over which they are flying is called "absolute altitude."

Illustration 1

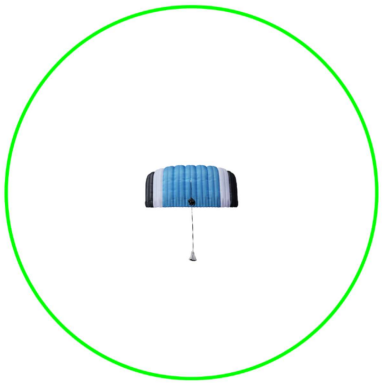
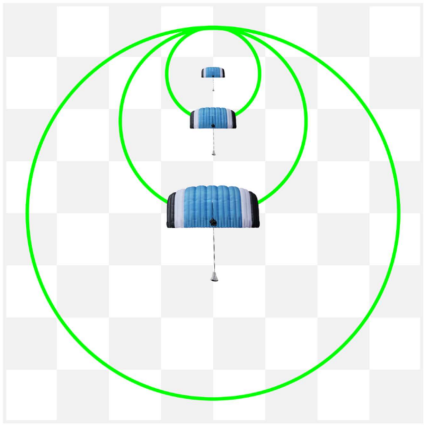
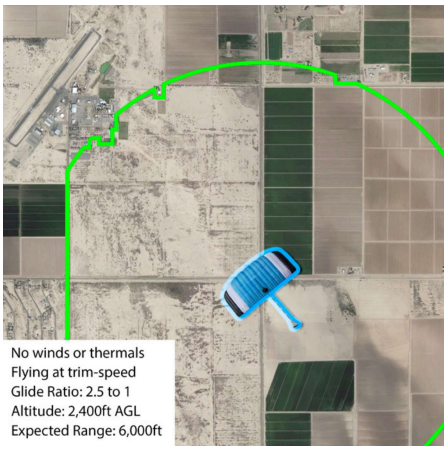


Illustration 2





The topography and objects on the ground can alter a pilot's range potential. Elevated terrain and obstacles like tall trees cause a canopy pilot have less altitude and touch down sooner in time. Over flat and clear terrain, the energy footprint remains a circle, but over terrain features and obstacles, the circle's shape changes. The edges reach into clear and flat areas while curving around hazards and elevated terrain. In the example at the upper right, power lines to the west and buildings and obstacles to the north change the shape of the circular energy footprint as the flattened-out areas are not an option for a safe landing.

While your altimeter may have been calibrated for your intended landing area, your absolute altitude can change drastically moment to moment. This is important to keep in mind when landing out. Imagine flying over the Grand Canyon. Above the trench you might be at 7,000 feet AGL, then a few seconds later, as you fly over the rim, you are at 2,000 feet AGL. Depending on your intended target, field elevation makes a difference in your range potential.

To train your situational awareness, start picturing your energy footprint using the visual trick covered in the previous article. This mental model requires constant updating. As your altitude diminishes, so do your landing options. This highlights the importance of choosing and committing to a safe landing area well above pattern altitude. In next month's installment we will elaborate on the concept, factoring in how wind affects range potential.

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