SSF Soaring Safety Foundation

RISK MANAGEMENT TOOLS FOR SOARING PILOTS

by Mike Bamberg

The general aviation community has had, for several years, tools to help pilots develop personal minimums and for assessing risk for individual flights. We have modified these tools to make them more appropriate for the soaring community.

Personal Minimums = Safety Buffer

Personal minimums are an effective way to manage risk before flight. The concept: set personal limits to which you will adhere by personal choice and discipline. They act as a safety buffer between the demands of the situation and your skills. These limits should be set or reviewed at least yearly. They are established by each pilot in a setting away from other pressures, with much introspection. If you are unsure that you can evaluate your own skills, working with a trusted instructor is a good option. These personal minimums will be effective only if you are honest in your evaluation and strict in your personal discipline.

Two tools can be adapted to the soaring environment fairly easily. There are probably others that you can find but these two seem to work well.

PAVE

The acronym stands for the factors affecting flight operations; Pilot, Aircraft, enVironment, and External. Each factor has sub-factors, evaluated individually. This particular tool has been around for some time but we have modified it to address glider pilots, aircraft and situations. The form is available on the SSF web site <www.soaringsafety.org>. It is designed to be tri-folded and kept in your flight bag.

As you review each factor and sub-factor on the form, ask yourself the question, Given my skill and experience, what is a safe limit to choose for this factor? Do not be too lenient with yourself. For those factors where the word familiar is listed, the idea is that if you're not familiar with the element in the current context that is probably a reason to postpone the flight until you are.

As you fill in the form you may find factors you wish to consider that are not on the form. The extra lines at the bottom are for your own special minimums.

The form has a space for each pilot to sign and date and also review with another pilot or instructor. While using this form is no guarantee that you'll avoid all risk, it is a good tool for reflection, review and evaluating the circumstances prior to any flight.

PAEDU

If a potential flight meets all your personal minimums, this tool can help you evaluate the risk associated with a single flight. The letters stand for Pilot, Aircraft, Environment, Duration, and Urgency. This tool was developed by the FAAs Aeronautical Decision Making program and is directly applicable to a soaring flight. For each factor consider the following:

Pilot IMSAFE, this is a common pilot airworthiness checklist.

Aircraft - Condition, equipment, performance for the intended flight

Environment - Weather, terrain, airport operations, airspace restrictions

Duration - Pilot fatigue, Aircraft & Environmental change due to time aloft

Urgency - Important meeting, Get home-itis, or limited time for a flight may result in a more favorable risk value than actual conditions dictate

Each of the five factors is assigned a number from 1 to 4, entered into the following formula:

(P + A + E) x (D + U) = Risk factor

Risk factors fall into three categories:

Low values of 6-10

Moderate values from 10-30

High values above 30

Lets use the tool to evaluate a flight. While these numbers may not be the ones you would assign in the circumstances, they will suffice for the illustration. For this case study we will use the following scenario:

A healthy, rested, current, private rated glider pilot with 20 hours since license, wishes to fly a well-maintained Schweizer 1-26 on a Silver C distance/duration flight. Today lift is expected to be 200-300 FPM with cloud bases of 5000AGL. There is no urgency to complete the flight and no constraints on time or airspace.

Pilot = 2 a fairly new pilot with limited experience, perhaps this should even be a 3.

Aircraft = 2 A great aircraft in good condition, good climber, short legs.

Environment = 3 poor to moderate lift (Im sure the southwest guys wouldn't even fly on such a day!)

Duration = 3 Five hours is a long time for conditions to remain good and pilot fatigue will be a big factor after all those long climbs, so maybe even a 4 here.

Urgency = 1 we can always do this flight another day.

The calculations: the best-case total is (2+2+3)x(3+1) = 28, the upper range of moderate risk. If we use the larger numbers for the calculation it becomes (3+2+3)x(4-1) = 40, well into the high- risk range. Kudos to those who made this flight, but is it a risk to which you wish to be exposed?

Like all tools, this one is most effective if you practice its use. Review a few of your flights. Think through the conditions and circumstance that existed before the flight and enter the values into the formula. Then consider how you felt after the flight. How did the risk value compare to the feelings after the flight was over. You may find that for you, the range values may need to be adjusted. Experienced pilots may be comfortable using a moderate range from 20-50 or some such values. You should review your own experience before making those changes.

Summary

Risk management is an important part of being a safe pilot. These tools can be an aid for the soaring pilot to evaluate and manage risk in their own flying. With regard to the PAVE tool, we have placed this version of the tool in the public domain and hope that the soaring community will refine it as they see fit. Copies, in PDF format or Microsoft Word format, can be downloaded at www.soaringxcellence.com/downloads.html

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