# Flight Risk Assessment Tools

When implementing a Safety Management System (SMS), one of the most critical components to develop is a Flight Risk Assessment Tool (FRAT). Because every flight has some level of risk, it is critical that pilots are able to differentiate, in advance, between a low risk flight and a high risk flight, and then establish a review process and develop risk mitigation strategies. A Flight Risk Analysis Tool enables proactive hazard identification, is easy to use, and can visually depict risk. It is an invaluable tool in helping pilots make better go/no-go decisions and should be a part of every flight.
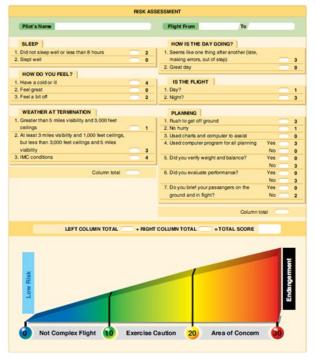
## Why Should I Use It?

"In the thick" is no time to try to mitigate a potentially hazardous outcome. When preparing for a flight or maintenance task, operators and maintenance technicians should take time to stop and think about the hazards involved.

Attempting this task "in our heads" usually does not take into account actual risk exposure. The mind tends to compartmentalize the individual hazards which, in turn, fails to appreciate their cumulative effects. We may also allow our personal desires to manipulate our risk assessment in order to meet personal goals. The best way to compensate for these inherent shortcomings is to take the task to paper.

Putting everything on "paper" allows us to establish our risk limits in an atmosphere free from the pressure of an impending flight or maintenance task. It also gives a perspective on the entire risk picture that we cannot get in our heads. Most importantly, it sets the stage for managing risk through proactive risk mitigation strategies that are documented.

A risk assessment tool should allow operators and pilots to see the risk profile of a flight in its planning stages. Each operator should determine an acceptable level of risk for its flights based on the type of operation, environment, aircraft used, crew training, and overall operating experience. When the risk for a flight exceeds the acceptable level, the hazards associated with that risk should be further evaluated and the risk reduced. A higher risk flight should not be operated if the hazards cannot be mitigated to an acceptable level.



*Example Risk Assessment Form*

**FAAST**
Federal Aviation Administration
**SAFETY TEAM**

*www.FAASafety.gov*
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## What Do I Do With My Score?

The operator will need to create numerical thresholds that trigger additional levels of scrutiny prior to a go/no-go decision for the flight. These thresholds should be created to help ensure that the safety standards of each individual operation are maintained. However, it is important that the operator create realistic thresholds. If every flight is within the acceptable range under any condition, it is likely that the thresholds have not been set correctly.

The FRAT should have three possible score ranges. These are often grouped into Green, Yellow and Red sections.

**Green: Go fly!**
The pilot/crew should still discuss what the highest scoring risks are and attempt to mitigate those risks.

**Yellow: Try to mitigate some of the higher scoring items**.
If the score is still in the yellow, bring in the opinion of a designated "contact" person such as a CFI or FAA Safety Team (FAASTeam) Representative. This contact person must understand aviation safety, which usually means another pilot with safety or management status or mechanic, as applicable. They will help think of ways to further mitigate some of the risks for the flight.

**Red: No-Go**.
Unless the risks involved in the flight can be mitigated (different crew/adding a co-pilot, better equipment, delayed launch time...) the flight is cancelled. High scoring elements should be addressed in an SMS.

## Introducing the FAAST FRAT

No FRAT can anticipate all the hazards that may impact a particular flight but there are some common hazards that GA pilots encounter regularly. The FAASTeam has produced an easy-to-use FRAT that will get you started in effective safety risk management.

The FAAST FRAT is a simple automated spread sheet that will run on MS Windows or Apple computer operating systems. All you have to do is download the appropriate file for your computer and you're in business. You can find the FAAST FRAT here: http://go.usa.gov/3Pu65.

## Learn More

**FAA Advisory Circular, AC 120-92A,**
**SMS for Aviation Service Providers**
http://www.faa.gov/documentLibrary/media/Advisory_Circular/AC%20120-92A.pdf

**Risk Management Handbook (FAA-H-8083-2)**
**Chapter 4-2**
http://go.usa.gov/jAJk

**"You Can Take it With You," FAA Safety Briefing,**
**July/August 2012, page 4**
http://go.usa.gov/jAuV

**IHST SMS Toolkit, 2nd Edition for more SMS reference material (pages 32-34):**
http://www.ihst.org/portals/54/2009_SMS_Toolkit_ed2_Final.pdf

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