A Flight/Ground Risk Assessment Tool (FRAT/GRAT)

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When implementing a Safety Management System, one of the most critical components to develop is a Flight Risk Assessment Tool (FRAT) or a Ground Risk Assessment Tool (GRAT).

Why use one?

When preparing for a flight or maintenance task we should all think about the hazards involved. Unfortunately, when we do this in our heads we usually do not calculate the actual risk exposure that we could be confronted with. In our minds we compartmentalize the individual hazards, which fails to take into account their cumulative effects. We may also allow our personal desires to manipulate our risk assessment in order to meet personal goals. The high pace of operations just prior to a flight may influence our ability to make an objective assessment of the flight. Sometimes we just forget to consider an important aspect of the flight.

What it does…

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.

It is a common belief that the FRAT/GRAT is a 'Go/No-Go' tool. While that is one function it can perform, that is not the main purpose. The primary goal of a FRAT/GRAT is risk mitigation. Once the risk picture has been painted, we look at ways to lower that risk. A mnemonic often used to guide this effort is ALARP (As Low As Reasonably Practicable). The idea is that we may not be able to eliminate all risk, but unnecessary risk should be identified and mitigated. If using a multi-person crew or dispatchers, engage the entire team in this process; the outcome will produce better results and all will have a better understanding of the risks involved. Look at the categories creating the highest scores and think of ways to lower that score. Examples may include: different routes, delaying the flight, additional equipment, changing flight crews, designating alternate landing areas, getting additional information.

When this process is done, not only will you have lowered risk, but you will have also put the entire crew on the same page for the upcoming flight.

What it should include…

The FRAT/GRAT needs to be customized to your specific operation. A sound framework to support FRAT development is the **PAVE** model found in the FAA Risk Management Handbook. PAVE identifies four major hazard categories, which are listed with examples below:

- **P**ilot/Aircrew – Experience, training, fatigue, illness, (I'M SAFE checklist)

- **A**ircraft – Known maintenance issues, performance limitations, fuel status, avionics updates
- en**V**ironment – Weather (present and forecast), flight (mission) type, ATC, obstructions, time of day, other air traffic
- **E**xternal Pressures – Recent changes in personnel, management insistence, difficult customers, consequences of cancelling flight

Your FRAT/GRAT must include a <u>Mitigation</u> section for each category. This section allows the pilot/crew to add mitigation to a high scoring item and adjust the score for that entry according to how those actions reduce risk.

If your operation flies unscheduled flights your FRAT should include 'static' and a 'dynamic' sections. The static section includes the elements that are unlikely to change throughout the day. This will usually be the bulk of your FRAT and can be filled out at the beginning of a shift. The dynamic section includes those items that can only be filled out with certainty when the time and specifics of a task are known, often just before the flight or maintenance procedure.

What do I do with the final score?

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

Green – Go fly! The pilot/crew still want to 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, call a contact person. That 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. If the score is still in the yellow, the contact person can release the flight with the knowledge from all involved that the flight is being conducted in an elevated risk category.

Red – No-Go. Unless the risks involved in the flight can be mitigated (different crew or equipment, delayed launch time…) the flight is cancelled. High scoring elements should be addressed in a company SMS.

SMS and the FRAT/GRAT…

A FRAT/GRAT is an active component of an SMS. Risks specifically targeted by your SMS and the mitigations you develop to counter them should be included in your FRAT/GRAT. If a hazard is generating a higher risk assessment score, increase the score on the FRAT/GRAT, and vice-versa.

Track the results of your FRATs/GRATs, especially the high scores. Periodically analyze the data to see what those high scores are and what the real or potential impact is on your organization. Feed that information into your SMS to drive training, equipment purchases or policy changes that can lower risk in general and also <u>lower the number of cancelled flights in your operation.</u>

Use FRAT/GRAT data to determine if specific risk mitigations (training, procedures, equipment) are having the desired effect, a.k.a Risk Management Assurance.

Elements of a good FRAT/GRAT
- Customized to your operation -
- Easy to fill out – use automation to fill in items whenever possible
- 'Living document' – the FRAT/GRAT should change as your operation changes

Example Risk Assessment Form:

The above FRAT can be obtained at no cost from the European Aviation Safety Agency (EASA). *https://easa.europa.eu/essi/ehest/2012/06/pre-departure-check-list*