Federal Aviation Administration

Flight Review Resources

Pilot's Aeronautical History for Flight Review

Pilot's Name:_____ CFI:_____
Address:_____
Phone(s):_____ e-mail:_____

Type of Pilot Certificate(s):
Private_____ Commercial_____ ATP_____ Flight Instructor_____

Rating(s):
Instrument_____ Multiengine _____

Experience (Pilot):
Total time_____ Last 6 months_____ Avg hours/month_____

Time logged since last flight review_____ Since last IPC_____

Experience (Aircraft):
Aircraft type(s) you fly_____
_____

Aircraft used most often_____

For this aircraft:
Total time_____ Last 6 months_____ Avg hours/month_____

Experience (Flight environment):

Since your last flight review, approximately how many hours have you logged in:

Day VFR_____ Day IFR_____ IMC_____
Night VFR_____ Night IFR_____

Mountainous terrain_____ Overwater flying_____

Airport with control tower_____ Airport w/o control tower_____

Type of Flying (External factors):

What percentage of your flying is for:
Pleasure_____Business_____ Local_____ XC_____

Personal Skills Assessment:
What are your strengths as a pilot?_____
What do you most want to practice/improve?_____
What are your aviation goals?_____

Personal Proficiency Practice Plan

Pilot's Name:_____ CFI:_____
Date:_____ Review Date:_____

VFR Flight Profile – Every 4-6 Weeks:

Preflight (include 3-P Risk Management Process)

Normal taxi, takeoff, departure to practice area.

CHAPS (before each maneuver):
- **C**lear the area
- **H**eading established & noted
- **A**ltitude established (at least 3,000 AGL)
- **P**osition near a suitable emergency landing area
- **S**et power and aircraft configuration

Steep turns (both directions), maintaining altitude within 100' and airspeed within 10 knots.

Power-off stalls (approach to landing) & recovery.

Power-on stalls (takeoff/departure) & recovery.

Ground reference maneuvers.

Pattern practice:
- Normal landing (full flaps)
- Short-field takeoff and landing over a 50' obstacle
- Soft-field takeoff and landing

Secure the aircraft.

Review your performance.

Schedule next proficiency flight.

Getting the Maximum from Personal Minimums

story and photos by Susan Parson

You don't have to be involved in aviation very long before you hear the time-honored advice on personal minimums. It goes something like this: "Legal weather minimums are just a starting point. You should establish your own personal minimums for flying, and you must have the discipline to stick to them—no matter how much you want to make the trip."

Sound familiar? It's good advice. Most pilots would agree that it's a good idea, and it's probably true that more accident pilots—not to mention their innocent passengers—might be alive today if they had followed it. So why didn't they? And why do so many pilots who appear for flight reviews or other training look sheepish and make excuses for why they haven't managed to write down their own personal minimums?

There are probably many reasons that the concept of personal minimums is more honored as an idea than as a regular practice. I suspect, however, that a major reason is that many pilots—even safety-conscious ones—don't have a clear idea about where to start, and that many flight instructors—even conscientious ones—may not know how to guide pilots through the process of establishing personal minimums. I confess that I have been guilty on both counts. I consider myself to be a safety-minded pilot, but for too many years my personal minimums were little more than a vague mental notion. I also like to think of myself as a conscientious and safety-minded flight instructor (CFI), but far too few of my clients would be able to tell you that I even talked about, much less taught about, personal minimums. To make amends, here are some ideas that might help fellow aviators avoid similar sins of omission.

Let's start with the basics. What exactly do we mean when we talk about "personal minimums?" In formal terms, personal minimums refers to an individual pilot's set of procedures, rules, criteria, and guidelines for deciding whether, and under what conditions, to operate (or continue operating) in the National Airspace System.

While this definition is accurate, there are several reasons why you may not find it particularly helpful as a starting point. First, it tends to describe the product rather than explain the process, which is where many pilots have trouble. Second, and more importantly, the formal definition of the end product—your personal set of procedures, rules, criteria, and guidelines—does not really convey one of the core concepts: personal minimums as a "safety buffer" between the demands of the situation and the extent of your skills.

Think of personal minimums as the human factors equivalent of reserve fuel. When you plan a flight, the regulations require you to calculate fuel use in a way that leaves a certain minimum amount of fuel in the tanks when you land at your destination or

your alternative. The reserve fuel is intended to provide a safety buffer between fuel required for normal flight and fuel available to avoid total quiet in your engine compartment.

In the same way, personal minimums should be set so as to provide a solid safety buffer between the skills required for the specific flight you want to make, and the skills available to you through training, experience, currency, and proficiency. In fuel calculations, you wouldn't dream of planning a flight that would force you to use your reserve fuel, or (worse) take you to the "unusable fuel" level in the tanks. In skill calculations, you shouldn't consider making a flight that requires use of skills at the "reserve" or (worse) "unusable fuel" level of your piloting ability.

So where do you start in developing personal minimums? There is no single "right" way to proceed, but if you're unsure of how to proceed in establishing your own personal minimums, this method offers a reasonable place to start.

Step 1 – Review Weather Minimums

Most people think of personal minimums primarily in terms of weather conditions, so begin with a quick review of weather definitions. The regulations define weather flight conditions for visual flight rules (VFR) and instrument flight rules (IFR) in terms of specific values for ceiling and visibility.

Category	Ceiling		Visibility
Visual Flight Rules **VFR** (green sky symbol)	greater than 3,000 feet AGL	and	greater than 5 miles
Marginal Visual Flight Rules **MVFR** (blue sky symbol)	1,000 to 3,000 feet AGL	and/or	3 to 5 miles
Instrument Flight Rules **IFR** (red sky symbol)	500 to below 1,000 feet AGL	and/or	1 mile to less than 3 miles
Low Instrument Flight Rules **LIFR** (magenta sky symbol)	below 500 feet AGL	and/or	less than 1 mile

For our purpose, we will define IFR as a ceiling less than 1,000 feet AGL and/or visibility less than three miles. LIFR is a sub-category of IFR. VFR is defined as ceiling greater than 3,000 feet AGL and visibility greater than five miles. MVFR is a sub-category of VFR.

Step 2 – Assess Your Experience and Comfort Level

At first glance, this part of the process might look a bit complicated, but please bear with me. It might take a few minutes to review, record, and summarize your personal experience, but I think you will find that the finished product is well worth your time.

First, think back through your flight training and complete the "Certification Training, and Experience Summary" chart on the next page. The Certification, Training, and Experience Summary Source is adapted from the FAA's *Personal and Weather Risk Assessment Guide* (October 2003). It can be found at:

<www.faa.gov/education_research/training/fits/guidance/media/Pers%20Wx%20Risk%20Assessment%20Guide-V1.0.pdf>.

Next, think through your recent flying experiences and make a note of the lowest weather conditions that you have comfortably experienced as a pilot in your VFR and, if applicable, IFR flying in the last six to 12 months. You might want to use the charts below as a guide for this assessment, but don't feel that you need to fill in every square. In fact, you may not have, or even need, an entry for every category. For example, suppose that most of your flying takes place in a part of the country where clear skies and visibilities of 30 plus miles are normal. Your entry might specify the lowest VFR ceiling as 7,000, and the lowest visibility as 15 miles. You may have never experienced MVFR conditions at all, so you would leave those boxes blank.

In my part of the country, normal summer flying often involves hazy conditions, but over relatively flat terrain. I

know the local terrain and, since I have regularly operated in hazy daytime MVFR conditions (e.g., 2,500 and four miles), I would use the MVFR column to record these values. Even in my home airspace, though, I would not consider flying down to VFR minimums at night—much less in the range of conditions defined as MVFR. For night VFR, I would not be comfortable with anything less than a ceiling of at least 5,000, and visibility of at least seven to eight miles. How my entries would look in the Experience & "Comfort Level" Asseement VFR & MFR chart:

If you fly IFR, the next part of the exercise is to record the lowest IFR conditions that you have comfortably, recently and regularly experienced in your flying career. Again, be honest in your assessment. Although I have successfully flown in low IFR (LIFR) conditions-–down to a 300 foot ceil-

Experience & "Comfort Level" Assessment VFR & MVFR			
Weather Condition		**VFR**	**MVFR**
Ceiling		**> 3000**	**1000-3000**
	Day	--	2,500
	Night	5,000	--
Visibility		**> 5 miles**	**3-5 miles**
	Day	–	4 miles
	Night	8 miles	--

Certification, Training, and Experience Summary

CERTIFICATION LEVEL	
Certificate level (e.g., private, commercial,ATP)	
Ratings (e.g., instrument, multiengine)	
Endorsements (e.g., complex, high performance, high altitude)	
TRAINING SUMMARY	
Flight review (e.g., certificate, rating, Wings)	
Instrument Proficiency Check	
Time since checkout in airplane 1	
Time since checkout in airplane 2	
Time since checkout in airplane 3	
Variation in equipment (e.g., GPS navigators, autopilot)	
EXPERIENCE	
Total flying time	
Years of flying experience	
RECENT EXPERIENCE (last 12 months)	
Hours	
Hours in this airplane (or identical model)	
Landings	
Night hours	
Night landings	
Hours flown in high density altitude	
Hours flown in mountainous terrain	
Crosswind landings	
IFR hours	
IMC hours (actual conditions)	
Approaches (actual or simulated)	

ing and 3/4 mile visibility—I would never claim to have been "comfortable" in these conditions, especially since I was operating in a single pilot/single engine configuration. I would therefore leave the LIFR boxes blank, and my entries for known "comfort level" in Instrument Meteorological Conditions (IMC) would be as shown below:

Experience & "Comfort Level" Assessment IFR & LIFR			
Weather Condition		IFR	LIFR
Ceiling		500-999	< 500
	Day	800	–
	Night	999	–
Visibility		1-3 miles	< 1 mile
	Day	1 mile	--
	Night	3 miles	–

If I combine my entries into a single chart, the summary of my personal known "comfort level" for VFR, MVFR, IFR, and LIFR weather conditions is as follows:

Experience & "Comfort Level" Assessmen t Combined VFR & IFR					
Weather Condition		VFR	MVFR	IFR	LIFR
Ceiling					
	Day	2,500		800	
	Night	5,000		999	
Visibility					
	Day	4 miles		1 mile	
	Night	8 miles		3 miles	

Step 3 – Consider Other Conditions

Ceiling and visibility are the most obvious conditions to consider in setting personal minimums, but it is also a good idea to have personal minimums for wind and turbulence. As with ceiling and visibility, the goal in this step is to record the most challenging wind conditions you have comfortably experienced in the last six to 12 months—not necessarily the most challenging wind conditions you have managed to survive without bending an airplane. As shown in the chart to the right, you can record these values for category and class, for specific make and model, or perhaps both.

In addition to winds, your "comfort level" inventory should also include factors related to aircraft performance. There are many variables, but start by completing the chart with reference to the aircraft and terrain most typical for the kind of flying you do most. Remember that you want to establish a safety buffer, so be honest with yourself. If you have never operated to/from a runway shorter than 5,000 feet, the "shortest runway" box should say 5,000 feet. We will talk more about safe ways to extend personal minimums a bit later. (See chart on the right.)

Step 4 – Assemble and Evaluate

Now you have some useful numbers to use in establishing baseline personal minimums. Combining these numbers the Baseline Personal Minimims chart on the next page shows how the whole picture might look.

Step 5 – Adjust for Specific Conditions

Any flight you make involves almost infinite combinations of pilot skill, experience, condition, and proficiency; aircraft equipment and performance; environmental conditions; and external influences. Both individually and in combination, these factors can compress the safety buffer provided by your baseline personal minimums. Consequently, you need a practical way to adjust your baseline personal minimums to accommodate specific conditions. See the chart on page 6 for an example of how this can be done.

Note that the suggested adjustment factors are just that—a suggestion. If your flying experience is limited or if you don't fly very often, you might want to double these values. In addition, if your situation involves more than one special condition from the chart above, you will probably want to add the adjustment factor for each one. For example, suppose you are planning a night cross-country to an unfamiliar airport, departing after a full workday. If you decide to make this trip—or you might decide that it is safest to wait until the next day—this chart suggests that you should at least raise your baseline personal minimums by adding 1,000 feet to your ceiling value; one mile to visibility, and 1,000 feet to required runway length.

How about adjustments in the other direction? Some pilots fear that establishing personal minimums is a once-and-for-all exercise. With time and experience, though, you

Experience & "Comfort Level" Assessmen t Wind & Turbulence				
		SE	ME	Make/ Model
Turbulence				
	Surface wind speed	10 knots	15 knots	
	Surface wind gusts	5 knots	8 knots	
	Crosswind component	7	7	

Experience & "Comfort Level" Assessment Performance Factors			
	SE	ME	Make/ Model
Performance			
Shortest runway	2,500	4,500	
Highest terrain	6,000	3,000	
Highest density altitude	3,000	3,000	

Baseline Personal Minimums					
Weather Condition		**VFR**	**MVFR**	**IFR**	**LIFR**
Ceiling					
	Day	2,500		800	
	Night	5,000		999	
Visibility					
	Day	4 miles		1 mile	
	Night	8 miles		3 miles	
Turbulence		**SE**	**ME**	**Make/Model**	
	Surface Wind Speed	10 knots	15 knots		
	Surface Wind Gust	5 knots	8 knots		
	Crosswind Component	7	7		
Performance		**SE**	**ME**	**Make/Model**	
	Shortest runway	2,500	4,500		
	Highest terrain	6,000	3,000		
	Highest density altitude	3,000	3,000		

can modify personal minimums to match growing skill and judgment. When you have comfortably flown to your baseline personal minimums for several months, you might want to sit down and assess whether, and how, to safely push the envelope. If, for instance, your personal minimums call for daytime visibility of at least five miles, and you have developed some solid experience flying in those conditions, you might consider lowering the visibility value to four miles for your next flight.

Two important cautions:

- First, never adjust personal minimums to a lower value for a specific flight. The time to consider adjustments is when you are not under any pressure to fly, and when you have the time and objectivity to think honestly about your skill, performance, and comfort level during last the few flights. Changing personal minimums "on the fly" defeats the purpose of having them in the first place.
- Second, keep all other variables constant. For example, if your goal is to lower your baseline personal minimums for visibility, don't try to lower the ceiling, wind, or other values at the same time. In addition, you never want to push the baseline if there are special conditions (e.g., unfamiliar aircraft, pilot fatigue) present for this flight.

You might find it helpful to talk through both your newly-established personal minimums and any "push-the-envelope" plans with a well-qualified flight instructor.

Step 6 – Stick to the Plan!

Once you have done all the thinking required to establish baseline personal minimums, "all" you need to do next is stick to the plan. As most pilots know, that task is a lot harder than it sounds, especially when the flight is for a trip that you really want to make, or when you are staring into

the faces of your disappointed passengers. Here's where personal minimums can be an especially valuable tool. Professional pilots live by the numbers, and so should you. Pre-established hard numbers can make it a lot easier to make a smart "no go" or "divert" decision than a vague sense that you can "probably" deal with the conditions that you are facing at any given time. In addition, a written set of personal minimums can also make it easier to explain tough decisions to passengers who are, after all, trusting their lives to your aeronautical skill and judgment.

Susan Parson is a Special Assistant in Flight Standards' General Aviation and Commercial Division and an active general aviation pilot and flight instructor. She welcomes your thoughts and ideas on best practices for establishing and adjusting your personal minimums. Send comments to: <susan.parson@faa.gov>.

	If you are facing:	Adjust baseline personal minimums by:	
Pilot	Illness, use of medication, stress, or fatigue; lack of currency (e.g., haven't flown for several weeks)	Add	*at least* 500 feet to ceiling
			at least ½ mile to visibility
Aircraft	An unfamiliar airplane or an aircraft with unfamiliar avionics or other equipment:		*at least* 500 ft to runway length
enVironment	Unfamiliar airports and airspace; different terrain or other unfamiliar characteristics	Subtract	*at least* 5 knots from winds
External Pressures	"Must meet" deadlines, pressures from passengers, etc.		

Step 4: Assemble and evaluate baseline personal minimums.

Baseline Personal Minimums					
Weather Condition		**VFR**	**MVFR**	**IFR**	**LIFR**
Ceiling					
	Day				
	Night				
Visibility					
	Day				
	Night				
Turbulence		**SE**	**ME**	**Make/Model**	
	Surface Wind Speed				
	Surface Wind Gust				
	Crosswind Component				
Performance		**SE**	**ME**	**Make/Model**	
	Shortest runway				
	Highest terrain				
	Highest density altitude				

Step 5: Adjust for specific conditions.

	If you are facing:		Adjust baseline personal minimums to:	
Pilot	Illness, medication, stress, or fatigue; lack of currency (e.g., haven't flown for several weeks)		Add	*At least* 500 feet to ceiling
				At least ½ mile to visibility
Aircraft	An unfamiliar airplane, or an aircraft with unfamiliar avionics/ equipment:			*At least* 500 ft to runway length
enVironment	Airports and airspace with different terrain or unfamiliar characteristics		Subtract	*At least* 5 knots from winds
External Pressures	"Must meet" deadlines, passenger pressures; etc.			

Federal Aviation Administration

Developing *Personal* Minimums

Think of personal minimums as the human factors equivalent of reserve fuel. Personal minimums should provide a solid safety buffer between:

- *Skills required* for the specific flight, and
- *Skills available* to you through your training, experience, currency, and proficiency.

Step 1 – Review Weather Minimums

Step 2 – Assess Weather Experience and Personal Comfort Level

Step 3 – Consider Winds and Performance

Step 4 – Assemble Baseline Values

Step 5 – Adjust for Specific Conditions

Step 6 – Stick to the Plan!

Step 1: Review definitions for VFR & IFR weather minimums.

Category	Ceiling		Visibility
VFR	greater than 3,000 AGL	and	greater than 5 miles
MVFR	1,000 to 3,000 AGL	and/or	3 to 5 miles
IFR	500 to 999 AGL	and/or	1 mile to less than 3 miles
LIFR	below 500 AGL	and/or	less than 1 mile

Step 2(a): Record certification, training, & recent experience.

CERTIFICATION LEVEL	
Certificate level (e.g., private, commercial, ATP)	
Ratings (e.g., instrument, multiengine)	
Endorsements (e.g., complex, HP, high altitude)	
TRAINING SUMMARY	
Flight review (e.g., certificate, rating, Wings)	
Instrument Proficiency Check	
Time since checkout in airplane 1	
Time since checkout in airplane 2	
EXPERIENCE	
Total flying time	
Years of flying experience	
RECENT EXPERIENCE (last 12 months)	
Hours	
Hours in this airplane (or identical model)	
Normal Landings	
Crosswind landings	
Night hours	
Night landings	
Hours flown in high density altitude	
Hours flown in mountainous terrain	
IFR hours	
IMC hours (actual conditions)	
Approaches (actual or simulated)	
Time with specific GPS navigator	
Time with specific autopilot	

Step 2(b): Enter values for weather experience/ "comfort level."

Experience & "Comfort Level" Assessment Combined VFR & IFR					
Weather Condition		**VFR**	**MVFR**	**IFR**	**LIFR**
Ceiling					
	Day				
	Night				
Visibility					
	Day				
	Night				

Step 3(a): Enter values for experience / comfort in turbulence.

Experience & "Comfort Level" Assessment Wind & Turbulence			
	SE	**ME**	**Make/ Model**
Turbulence			
Surface wind speed			
Surface wind gusts			
Crosswind component			

Step 3(b): Enter values for performance.

Experience & "Comfort Level" Assessment Performance Factors			
	SE	**ME**	**Make/ Model**
Performance			
Shortest runway			
Highest terrain			
Highest density altitude			

Pilot's Cross-Country Checklist

PILOT

- ☐ Review Personal Minimums Checklist
  - ☐ Recency (time/practice in last 30 days)
  - ☐ Currency (takeoffs & landings, IFR currency if applicable)
  - ☐ Terrain & airspace (familiarity?)
  - ☐ Health & well-being

AIRCRAFT

- ☐ Overall mechanical condition
- ☐ Avionics & systems
- ☐ Performance calculations
- ☐ Fuel requirements
- ☐ Other equipment

ENVIRONMENT

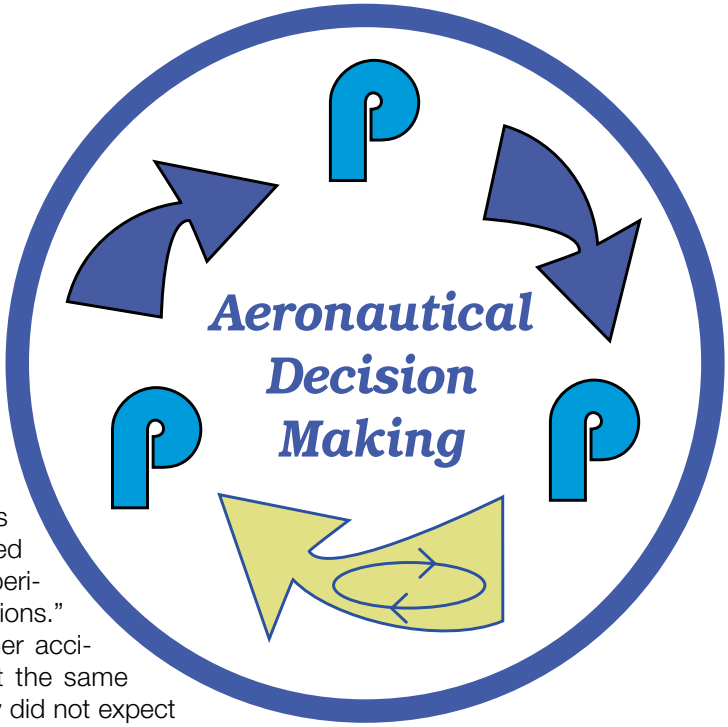
- ☐ Weather
  - ☐ Reports & forecasts
    - ☐ Departure
    - ☐ En route
    - ☐ Destination
  - ☐ Severe weather forecasts?
  - ☐ Weather stability?
  - ☐ Alternate required?
- ☐ Night
  - ☐ Flashlights available
  - ☐ Terrain avoidance plan
- ☐ Airspace
    - ☐ TFRs or other restrictions
    - ☐ COM/NAV equipment requirements
    - ☐ Cruising altitude(s)
- ☐ Terrain
    - ☐ VFR & IFR charts with MSA / MEA altitudes
    - ☐ AOPA/ASF Terrain Avoidance Planning
- ☐ Airports
    - ☐ COM/NAV requirements & frequencies
    - ☐ Runway lengths
    - ☐ Services available

EXTERNAL PRESSURES

- ☐ Family expectations?
- ☐ Passenger needs / expectations?
- ☐ Weather worries?
- ☐ Prepared for diversion (money, accommodations)?
- ☐ Time pressures (e.g., "must be at work" issues)?

Weather Decision-Making for GA Pilots

by Susan Parson



Aviation has come a long way since the Wright brothers first flew at Kitty Hawk. One thing that has unfortunately not changed as much is the role that weather plays in fatal airplane accidents. Even after a century of flight, weather is still the factor most likely to result in accidents with fatalities.

From the safe perspective of the pilot's lounge, it is easy to second-guess an accident pilot's decisions. Many pilots have had the experience of hearing about a weather-related accident and thinking themselves immune from a similar experience, because "I would never have tried to fly in those conditions." Interviews with pilots who narrowly escaped aviation weather accidents indicate that many of the unfortunate pilots thought the same thing — that is, until they found themselves in conditions they did not expect and could not handle.

Given the broad availability of weather information, why do pilots continue to be surprised and trapped by adverse weather conditions? Ironically, the very abundance of weather information might be part of the answer. With many weather providers and weather products, it can be very difficult for pilots to screen out non-essential data, focus on key facts, and then correctly evaluate the risk resulting from a given set of circumstances.

This article describes how to use the FAA Aviation Safety Program's **P**erceive – **P**rocess – **P**erform decision-making framework as a guide for your preflight weather planning and in-flight weather decision-making. The basic steps are:

—**Perceive** weather hazards that could adversely affect your flight by obtaining all the information you need for good situational awareness.

—**Process** this information to determine whether, and how, the hazards create risk to the safety of your flight.

— **Perform** by acting to mitigate the risk and evaluate the outcome of your action.

Preflight Decision-Making

Perceive

When you plan a trip in a general aviation (GA) airplane, you might find yourself telling passengers that you are first going to "see" if weather conditions are suitable. In other words, your first preflight weather task is to *perceive* the flight environment by collecting information about current and forecast conditions along the intended route. Flight Service and DUATS are the approved sources of aviation weather information, but there are many other resources that can help you get the maximum benefit from your weather briefing. A few suggestions:

✔ *Prepare*. If you have a basic idea of current and forecast conditions and weather systems before you call the Automated Flight Service Station (AFSS) or access DUATS, it will help you better absorb information and identify areas that require closer investigation or discussion with the briefer. Many pilots start by getting the big picture with televised or online weather, and then go to the National Weather Service's Aviation Weather Center <http://aviationweather.gov/> and Aviation Digital Data Service (ADDS) <http://adds.aviationweather.noaa.gov/> for aviation-specific information. ADDS also offers interactive tools that can help you better visualize weather conditions.

✔ *Review.* Using the standard flight plan form, develop an estimate for altitude, route, and estimated time en route so you can get the most appropriate information from the AFSS briefer or DUATS.

✔ *Be honest* – with yourself and with the briefer – about any limitations in pilot skill or aircraft capability. If you are new to the area or unfamiliar with the typical weather patterns, including seasonal characteristics, speak up.

✔ *Ask questions* – what you don't know can hurt you. The worse the weather, the more data you need, and you should definitely seek a "live" briefing from an FSS specialist before you head for the airplane. If you are flying in instrument metereological conditions (IMC) or marginal visual flight rules (MVFR) that could deteriorate, be sure to get information on which direction (north, south, east, west) to turn for better weather, and how far (or how long) you would have to fly to reach it. Also, don't forget to

check the pilot reports (PIREPs) – fresh information from someone who has actually experienced the weather conditions can add substantially to your weather picture.

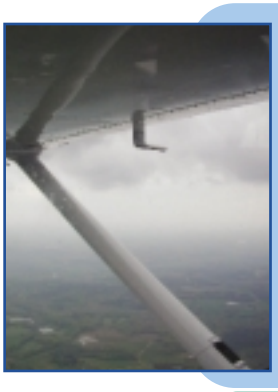
Process

Fuel in your tanks is useless unless it is processed through the engine. Similarly, weather information in your hands is worth little, unless it is processed through your brain. Weather is certainly complex, but the good news is that you don't have to have a degree in meteorology to effectively and accurately analyze the weather information that you just obtained. Here's a simple way to start processing your weather briefing data.

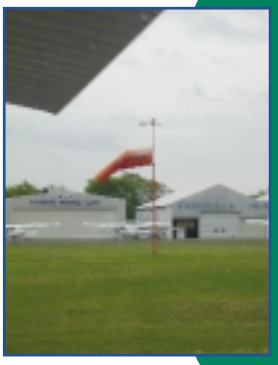
As you might remember from ground school, the three basic elements of weather are: *temperature* (warm or cold); *wind* (a vector with speed and direction); and *moisture* (or humidity). These three weather elements combine in various ways to create conditions that affect pilots.

While the range of possible combinations is nearly infinite, weather really affects pilots in just three ways. Specifically, the basic weather elements can. (See below)

Consequently, you need to analyze your weather briefing data in terms of how current and forecast conditions will create any of these hazards for your flight. Use any method that works for you, but you might find it helpful to jot information from METARs and TAFs into a format like the tables on the next page. The columns match the order in which the weather data is presented, with labels along the top for the three major weather impacts. Make rows to record conditions for departure, en route, and arrival phases of flight. This method can help you make "apples to apples" comparisons, and to see at a glance whether, and how, the three weather impact conditions will be present for each phase of your flight. You might make a similar analysis of winds aloft.



Reduce ceiling & visibility (clouds, fog, rain)



Create turbulence (wind, thunderstorms)

Reduce aircraft performance (ice, density altitude)

Once you identify the weather issues for your flight, the final part of processing your information is to evaluate whether the pilot-aircraft team is up to the challenge. For example, you may be a very experienced, proficient, and current pilot, but your weather flying ability will be limited if you are flying a 1980s-model aircraft with no weather avoidance gear. On the other hand, you may have a new technically advanced aircraft with moving map GPS, weather datalink, and autopilot — but if you do not have much weather flying experience, never count on the airplane's capability to compensate for your own lack of experience. It also helps to compare conditions to your personal minimums (see May/June 2006 issue of the *FAA Aviation News*).

Perform

The third step, making a preflight weather plan, is a strategic, "big picture" exercise that should include:

✔ *Escape Options:* Is there good weather within your aircraft's range and endurance capability? What direction do you turn, and how long will it take to get there? In bad weather, can you identify an acceptable alternative airport for each 25-30 nm segment of your route?

CURRENT CONDITIONS (METARs)

Weather Impact		Turbulence	Ceiling & Visibility			Visibility & Performance	Trends
Place	**Time**	**Wind**	**Visibility**	**Weather**	**Ceiling**	**Temp/Dewpt**	**Altimeter**
Dep							
ENR							
Dest							

FORECAST CONDITIONS (TAFs)

Weather Impact		Turbulence	Ceiling & Visibility		
Place	**Time**	**Wind**	**Visibility**	**Weather**	**Ceiling**
Dep					
ENR					
Dest					

✔ *Reserve Fuel:* Knowing where to find VFR weather will help only if you have enough fuel to reach it. More fuel means access to more alternatives. It also spares you the worry (and distraction) of fearing fuel exhaustion when weather has already increased your cockpit workload.

✔ *Terrain Avoidance*: Always know how low you can go without hitting terrain and/or obstacles. Make a specific terrain avoidance plan for any flight that involves MVFR conditions, a temperature/dewpoint spread of 4° C. or less, any expected precipitation, or operating at night.

✔ *Passenger Plan*: Pressures such as the pilot's reluctance to appear "cowardly" or to disappoint passengers can be very powerful, so your weather planning should include preflighting your passengers. Suggestions:

❍ Share personal weather minimums with your passengers, and state up front that you will delay or divert if conditions exceed these values.

❍ Let passenger know what you will do if you have to divert at any particular point. Preflight is the time to think through alternative arrangements (e.g., hotel, rental car) in the event that weather conditions worsen.

❍ Advise anyone meeting you at your destination that you will call when you arrive, and that you will delay or divert if weather becomes a problem.

❍ Remember that waiting it out is one of the most effective safety tools. A single day can often make the difference between risky and routine.

En Route Weather Decision Making

Perceive

When weather is not severe enough to cancel the trip, many pilots choose to take off and take a look. If you make such a decision, safety requires staying alert to weather changes. At typical GA aircraft speeds, a 200-mile trip can leave a two to three hour weather information gap between the preflight briefing and the actual flight — and weather can change a lot. Use these sources of information before you take-off:

✔ *Visual Updates*. Use your eyes to see whether the conditions around you match the conditions that were re-

ported or forecast. If not, you need to start getting more information.

✔ *ATIS/ASOS/AWOS*. Listen to ATIS and ASOS/AWOS broadcasts as you fly. If conditions are worse than forecast, it's time to seek more information.

✔ *Enroute Flight Advisory Service (EFAS, or Flight Watch)*. Available on 122.0 MHz in the continental United States from 5,000 feet AGL to 17,500 feet MSL (124.67 MHz at higher altitudes), call Flight Watch for en route weather advisories pertinent to the type of flight, route of flight, and altitude.

✔ *Air Traffic Control (ATC)*. If you are not already on an IFR flight plan, monitoring ATC frequencies (available on aeronautical charts) along the way can tell you a lot. For instance, are other GA aircraft along your route deviating for weather? Having the ATC frequency tuned also makes it easier to request information and assistance.

✔ *Datalink and Weather Avoidance Equipment*. Datalink is an increasingly popular method of getting inflight weather information. Datalink uses satellites to transmit METARs, TAFs, NEXRAD, and other information to the cockpit for display on the multifunction display (MFD) or a handheld unit.

Process

In order to properly evaluate and interpret en route weather information, you need to be aware of limitations such as:

✔ *Visual Limitations*. Research has determined that weather transitions are sometimes too subtle for the visual system. The human eye responds best to changes, including motion and light (e.g., flashing strobe). In deteriorating weather conditions, reductions in visibility and contrast can occur so gradually that the pilot does not notice until there is a significant reduction in visibility.

✔ *ATIS/ASOS/AWOS*. Inflight weather information obtained from ATIS and ASOS/AWOS broadcasts can contribute useful pieces to the en route weather picture, but remember that it is only a "snapshot" of a limited area in the airport vicinity.

✔ *EFAS*. Interpreting EFAS information while you are also flying the aircraft — especially in adverse conditions with no autopilot — can be very challenging. Keep a chart at hand so that you can quickly visualize location of weather relative to your position and route, and determine whether (and where) you need to deviate.

✔ *Air Traffic Control (ATC)*. Be aware that radar "sees" only those entities that reflect energy. Precipitation density is indicated by the strength of the return and, while radar does not detect turbulence, an intense precipitation return may imply its existence. Similarly, icing does not show directly, but may be inferred by the presence of moisture, clouds, and precipitation at temperatures at or below freezing.

✔ *Datalink and Weather Avoidance Equipment*. Today's cockpit weather displays give pilots an unprecedented quantity of weather data, but datalink is not a silver bullet. The quality of the information depends heavily upon update rate, resolution, and coverage area. Accurate analysis of datalink information depends on your understanding each of these parameters.

Perform

Your preflight weather plan is a strategic tool. Use en route weather data and analysis to make tactical ("right now") weather decisions based on what you actually find in the air. Suggestions:

✔ *Take action*. Act immediately if you see or suspect deteriorating weather. For example, head for the nearest airport if you see developments such as:

- ❍ Clouds forming beneath your altitude,
- ❍ Gray or black areas ahead,
- ❍ Hard rain or moderate turbulence,
- ❍ Clouds forming above that require you to descend; or
- ❍ Conditions below your pre-established personal minimums.

It is always easier to reevaluate conditions and make a new plan from the safety of an airport.

✔ *Don't delay*. If you need help from ATC in avoiding or escaping weather, ask sooner rather than later. Remember that navigational guidance information issued to a VFR flight is *advisory* in nature. Suggested headings do not authorize you to violate regulations, and they are not guaranteed to keep you clear of all weather.

✔ *Never assume*. Don't make assumptions about what the controller knows about your flight.

- ❍ If you are handed off while on a suggested heading for weather avoidance, confirm that the next controller knows you are requesting this assistance.

- ❍ Remember that to ATC, "cleared direct when able" means to fly direct when you are able to navigate directly to the fix. It does *not* mean that you are now clear of weather. Always ask whether a direct course will keep you clear of radar returns indicative of thunderstorm activity.

✔ *Help other pilots.* When ever your workload permits, contribute to the system by making PIREPs yourself. If you aren't certain about how to give PIREPs, take a look at the AOPA Air Safety Foundation's free online "Skyspotter" course (http://www.aopa.org/asf/ online_courses /skyspotter/), which includes a handy PIREP form that you can put on your kneeboard. If you don't have a form

handy, don't let that stop you from contributing — tell the FSS specialist or controller what you see so that other pilots can benefit from your experience.

Post-Flight Weather Review

When you land after a challenging flight in the weather, you probably want nothing more than to go home and unwind. The immediate post flight period, however, is one of the best opportunities to increase your weather knowledge and understanding. Make it a point to learn something about weather from every flight. Take a few minutes to review and reflect by considering these questions:

✔What weather conditions/hazards existed, and how did they impact this flight?

Turbulence / Winds _____
Ceilings / Visibility _____
Aircraft Performance _____

✔How did the conditions encountered during this flight compare with the information obtained in the preflight and/or en route briefings?

✔Which source(s) of preflight weather information provided the best (or most useful, most accurate, most relevant) data for this flight?

✔Which source(s) of en route weather information provided the best (or most useful, most accurate, most relevant) data for this flight?

Weather is a fact of life for pilots. Developing your weather knowledge and expertise is well worth the time and effort you put into it, because weather wisdom will help keep you, and your passengers, safe in the skies.

Note: For more information, please go to:
http://www.faa.gov/pilots/safety/media/ga_weather_decision_making.pdf

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General Aviation Passenger SAFETY Briefing

story and photos by Susan Parson

Passenger Briefing – Complete

You may find this item, or something similar to it, on the pre-start checklist for just about any small or piston general aviation (GA) aircraft you fly. You are probably familiar with the passenger briefings you hear on airliners, and you know that the regulations—Title 14 of the Code of Federal Regulations (14 CFR) §91.107—require you to brief your passengers on how to fasten and unfasten seat belts and (if installed) safety harnesses. That's clearly important, but have you ever stopped to think about what else a truly "complete" passenger briefing in a GA aircraft should include? If not, you might start by taking a look at 14 CFR 91.519, which outlines the briefing requirements for large and turbine-powered multiengine airplanes and fractional ownership programs. While not everything on this list applies to a typical GA airplane, it still contains all the basic elements for a comprehensive and professional briefing. Arranged for easy recall, here are the items essential to a complete passenger SAFETY briefing.

Seatbelts

This is the item explicitly required in the regulations, so it is a good place to start your passenger briefing. The regulations give the pilot in command (PIC) two specific tasks with regard to seat belts and shoulder harnesses. The first is a duty to *brief* passengers on how the seat belts work. You cannot legally take off unless:

> *…the pilot in command of that aircraft ensures that each person on board is briefed on how to fasten and unfasten that person's seat belt and, if installed, shoulder harness. (14 CFR 91.107(a)(1)).*

The second statutory requirement is a duty to *notify* passengers that seat belts must be fastened. Specifically, the rule states that no pilot may take off, land, or "cause (an aircraft) to be moved on the surface" unless:

> *…the pilot in command of that aircraft ensures that each person on board has been notified to fasten his or her safety belt and, if installed, his or her shoulder harness. (14 CFR 91.107(a)(2).)*

In addition to these required topics, it is a good idea to brief your passengers on how to adjust and lock the seat position. This discussion is especially important for the passenger in the right front seat. Just imagine how startling (not to mention dangerous) it would be for everyone aboard if an unbriefed and unsecured passenger reacted to sudden rearward seat travel by instinctively grabbing the yoke.

Air

You want your passengers to be comfortable during the flight, so the second major item to include in your briefing is environmental controls. Show your passengers where the air vents are located, and tell them how to open and close overhead and/or floor-level vents in their seating area. Many GA airplanes have other environmental controls (e.g., cabin heat)

located somewhere on the instrument panel. If your passenger is airplane-savvy, you might show him or her how to adjust some or all of these controls. Remember, though, that for most non-pilots, the instrument panel for even the smallest GA aircraft is a bewildering array of dials and knobs and switches that all look alike. Unless your passenger has at least some experience in GA aircraft, it may be best to tell them to let you know if they are too hot or too cold, so that you can make the adjustment.

The subject of air brings up a more delicate issue—airsickness. Opinions differ widely on whether, and how, to discuss this topic with passengers. Some pilots advocate a direct approach, including a full briefing on location and use of airsickness bags. Others believe that a specific briefing triggers the power of suggestion in potentially queasy passengers, and prefer to avoid the subject entirely. You be the judge of your passengers' tendencies toward motion sickness, but if you are in the "don't tell" group, you will still want passengers to know that they should tell you right away if they feel uncomfortable for any reason.

Fire Extinguisher

Fires can, and do, occur in GA airplanes, especially with engine starts. You obviously don't want to scare your passengers, but the extra pair of hands could be very useful if you find yourself fighting flames during any part of the flight. If you have a fire extinguisher on board—you do, right? — show your passengers where it is located, how to unlatch it from its mount, and how to use it in the unlikely event of a fire.

Exit, Emergencies, and Equipment

Passenger briefings on airliners always include information on the location and operation of doors, and yours must do no less. The location of the door—or doors, depending on the model—is no mystery on most GA airplanes, so your briefing can be limited to door operation. Make sure that your passengers know how to open the door(s) in the event of an emergency evacuation. Since no one needs the distraction and discomfort of a door opening in flight, it is also important to brief your passengers on properly securing the door(s).

If your aircraft has doors on both sides of the fuselage, it is a good idea to develop and brief specific exit procedures to facilitate rapid evacuation of the aircraft. For example, you might plan on keeping your seat forward to allow rear seat passengers to exit via the left door, while you follow the right-seat passenger out the starboard door. This method allows you, as PIC and captain of your ship, to oversee the passenger evacuation before leaving the aircraft yourself. For aircraft with a single right-side door, consider what works best for a given group of passengers. You might want to have the right seat passenger exit and move the seat to allow rear seat passengers to follow, with you departing last. Alternatively, you might want to follow the right-seat passenger but remain at the door to assist in the evacuation of those in the rear seats. There is no single correct evacuation strategy, so the most important thing is to think it through in advance and communicate the plan to your passengers.

Another part of the emergency exit briefing is to designate a gathering point (e.g., walk aft to avoid the prop and gather at the rear of the aircraft). If you carry survival equipment, point it out to all passengers. Stress that safe and expeditious evacuation is the most important consideration, but consider designating one of your rear-seat passengers to be in charge of carrying survival equipment out of the aircraft if circumstances permit.

Finally, be sure to explain any equipment, such as supplemental oxygen, that passengers are expected to use during the flight.

Traffic and Talking

Even if you are operating under instrument flight rules (IFR), you still have a responsibility to see and avoid other traffic any time you are in visual meteorological conditions (VMC). It never hurts to have extra eyes scanning for traffic, so brief your passengers to let you know whenever they spot other aircraft. In addition, tell them what you want them to tell you. A simple "airplane on the right" will suffice, but since everyone can visualize a clock, you might ask them to given you traffic information in terms of the "o'clock" positions used by ATC. The added advantage of this option is that passengers listening to ATC communications will have a better idea of where to look when you get a traffic call.

Expectations for communications —talking—are another good topic to include in your passenger briefing. Passengers may not readily understand the term "sterile cockpit," but they will certainly understand that there are times when you need to focus fully on your flying. Let your passengers know that they should not attempt to talk to you (except for traffic point-outs) during the busy take-off/climb and approach/landing phases of the flight. If your intercom does not permit you to isolate the crew, let passengers know if you expect them to minimize their own conversation during these times.

Your Questions?

It is both professional and polite to conclude by giving your passengers an opportunity to ask questions about any part of the flight. Since some passengers may be intimidated by the novelty of GA flying or embarrassed to ask "dumb" questions, watch for any signs of confusion or concern. Make a special effort to invite those questions needed to clarify any part of the briefing they did not understand. The question time is a great opportunity to reassure a reluctant rider, or to encourage a potential future pilot's interest in aviation.

Passenger SAFETY Briefing – COMPLETE. Let's go flying!

Susan Parson is a special assistant in Flight Standards' General Aviation and Commercial Division.

(Cut, fold in center, laminate, and use to brief GA passengers)

Passenger SAFETY Briefing

N_____

S	Seat belts fastened for taxi, takeoff, landing. Shoulder harnesses fastened for takeoff, landing. Seat position adjusted and locked in place.
A	Air vents (*location and operation*). All environmental controls (*discussed*). Action in case of any passenger discomfort.
F	Fire extinguisher (*location and operation*)
E	Exit doors (*how to secure; how to open*) Emergency evacuation plan. Emergency/survival kit (*location and contents*). Equipment (*location and operation*).
T	Traffic (*scanning, spotting, notifying pilot*). Talking (*"sterile cockpit" expectations*).
Y	Your questions? (*Speak up!*)

Appendix 5
Aviation Weather Analysis Forms

CURRENT CONDITIONS (from METARs)

		Turbulence	Ceiling & Visibility			Visibility & Performance	Trends
Place	**Time**	**Wind**	**Visibility**	**Weather**	**Ceiling**	**Temp/Dewpt**	**Altimeter**

FORECAST CONDITIONS (from TAFs)

		Turbulence	Ceiling & Visibility		
Place	**Time**	**Wind**	**Visibility**	**Weather**	**Ceiling**

WINDS ALOFT

		Turbulence	Visibility & Performance
Place	**Altitude**	**Wind**	**Temp**

Appendix 6
Weather Analysis Checklists – VFR Flight

Ceiling & Visibility

- ✓ How much airspace do I have between the reported/forecast ceilings and the terrain along my route of flight? Does this information suggest any need to change my planned altitude?
- ✓ If I have to fly lower to remain clear of clouds, will terrain be a factor?
- ✓ How much ground clearance will I have?
- ✓ Do I have reliable ceiling information?
- ✓ Will I be over mountainous terrain or near large bodies of water where the weather can change rapidly, or where there may not be a nearby weather reporting station?
- ✓ What visibility can I expect for each phase of flight (departure, enroute, destination)?
- ✓ Given the speed of the aircraft, expected light conditions, terrain, and ceilings, are the reported and forecast visibility conditions sufficient for this trip?
- ✓ Are there conditions that could reduce visibility during the planned flight? (Hint: look for indications such as a small and/or decreasing temperature/dew point spread).
- ✓ Are reported and forecast ceiling & visibility values above my personal minimums?

Aircraft Performance

- ✓ Given temperature, altitude, density altitude, and aircraft loading, what is the expected aircraft performance?
  - o Takeoff distance
  - o Time & distance to climb
  - o Cruise performance
  - o Landing distance
- ✓ Are these performance values sufficient for the runways to be used and the terrain to be crossed on this flight?

  (*Remember that it is always good practice to add a 50% to 100% safety margin to the "book numbers" you derive from the charts in the aircraft's approved flight manual (AFM)*).

Turbulence

- ✓ Are the wind conditions at the departure and destination airports within the gust and crosswind capabilities of both the pilot and aircraft? (*Note: For most GA pilots, personal minimums in this category might be for a maximum gust of 5 knots and maximum crosswind component 5 knots below the maximum demonstrated crosswind component*.)
- ✓ What is the maneuvering speed (V_A) for this aircraft at the expected weight?

  (*Note: Remember that V_A is lower if you are flying at less than maximum gross weight.)*

VFR Analysis Worksheet		Turbulence	Ceiling & Visibility			Visibility & Performance	Trends
Place	**Time**	**Wind**	**Visibility**	**Weather**	**Ceiling**	**Temp/Dewpt**	**Altimeter**

Nearest Good Weather

Direction:
N S E W

Distance:____
nm

Flying time to nearest good VFR:_____

Turbulence Analysis

Personal Minimums:
Wind speed = _____
Gust factor = _____
Crosswind = _____

Departure wind = _____@_____
Destination wind = _____@_____
En route wind = _____@_____
Maneuvering speed = _____*

Convective SIGMETS? Yes ☐ No ☐

** V_A decreases as weight decreases*

Ceiling and Visibility Analysis

Personal Minimums:
Ceiling = _____
Visibility = _____

Planned altitude = _____
- Lowest en route ceiling = _____
= _____ ground clearance

Planned altitude = _____
- Highest en route obstacle = _____
= _____ clearance

Planned altitude = _____
- Highest en route terrain = _____
= _____ clearance

AIRMETS? Yes ☐ No ☐

SIGMETS? Yes ☐ No ☐

Reliable ceiling information? Yes ☐ No ☐

Over mountainous terrain ? Yes ☐ No ☐

Over large bodies of water ? Yes ☐ No ☐

Departure visibility = _____
Lowest en route visibility = _____
Destination visibility = _____

Performance Analysis

Density altitude = _____
Freezing level = _____

Takeoff distance = _____
Runway length = _____

Landing distance = _____
Runway length = _____

Cruise performance = _____

Fuel available = ____gal____hrs
Fuel required = ____gal____hrs
Fuel reserve = ____gal____hrs

Note: It is good practice to add a 50% to 100% safety margin to the "book numbers" you derive from charts in the approved flight manual (AFM).

Appendix 7
Weather Analysis Checklist – IFR Flight

Ceiling and Visibility

- ✓ Is the forecast ceiling for my estimated time of arrival high enough to make the approach?
- ✓ What visibility can I expect for each phase of flight (departure, enroute, destination)?

  --Will I have enough visibility to legally make an instrument approach at the destination?

  --Do current or forecast ceiling and visibility conditions require me to select and file an alternate? (1-2-3 rule.)

  --Where is the nearest GOOD weather alternative?
- ✓ How do reported and forecast conditions for ceiling and visibility compare with my personal minimums for IFR?

Aircraft Performance

- ✓ Given temperature, altitude, density altitude, and aircraft loading, what is the expected aircraft performance?
  - o Takeoff distance
  - o Time & distance to climb
  - o Cruise performance
  - o Landing distance
- ✓ Are these performance values sufficient for the runways to be used and the terrain to be crossed on this flight?

  (*Remember that it is always good practice to add a 50% to 100% safety margin to the "book numbers" you derive from the charts in the aircraft's approved flight manual (AFM*)).
- ✓ Will weight restrictions allow me to carry more than the normal fuel reserve?

  (*More fuel means that you have more options to escape weather*.)
- ✓ *Icing*. What is the forecast freezing level for this flight?
  - o Are there any pilot reports (PIREPS) for my route, or points on the route that support or rebut the icing forecast?
  - o Where are the cloud bases and cloud tops?

Turbulence

- ✓ Are the wind conditions at the departure and destination airports within the gust and crosswind capabilities of both the pilot and aircraft?
- ✓ What is the maneuvering speed (V_A) for this aircraft at the expected weight?

  (*Remember that V_A is lower if you are flying at less than maximum gross weight.)*
- ✓ *Thunderstorms*. Does the forecast include convective activity at any point along my proposed route?

IFR Analysis Worksheet		Turbulence	Ceiling & Visibility			Visibility & Performance	Trends
Place	**Time**	**Wind**	**Visibility**	**Weather**	**Ceiling**	**Temp/Dewpt**	**Altimeter**

Turbulence Analysis

Nearest VFR Weather

Direction:
N S E W

Distance:
____ nm

Flying time to nearest good VFR:_____

Personal Minimums:
Wind speed = _____
Gust factor = _____
Crosswind = _____

Departure wind = _____@_____
Destination wind = _____@_____
En route wind = _____@_____
Maneuvering speed = _____*

T-storms forecast? Yes ☐ No ☐

Convective SIGMETS? Yes ☐ No ☐

** V_A decreases as weight decreases*

Ceiling and Visibility Analysis

Personal IFR Approach Minimums:
Ceiling = _____
Visibility = _____

Planned altitude = _____
- Lowest en route ceiling = _____
} _____ ground clearance

Planned altitude = _____
- Highest en route obstacle =_____
} _____ clearance

Planned altitude = _____
- Highest en route terrain =_____
} _____ clearance

Cloud bases = _____ Cloud tops = _____

Alternate required ? Yes ☐ No ☐

Over mountainous terrain ? Yes ☐ No ☐

Over large bodies of water ? Yes ☐ No ☐

Departure visibility = _____
Lowest en route visibility = _____
Destination visibility = _____

Performance Analysis

Density altitude = _____
Freezing level = _____

Takeoff distance = _____
Runway length = _____

Landing distance = _____
Runway length = _____

Cruise performance = _____

Fuel available = ____gal____hrs
Fuel required = ____gal____hrs
Fuel reserve = ____gal____hrs

Note: It is good practice to add a 50% to 100% safety margin to the "book numbers" you derive from charts in the approved flight manual (AFM).

Personal Aeronautical Goals

Pilot's Name:_____ CFI:_____
Date:_____ Review Date:_____

Training Goals

_____ Certificate Level (Private, Commercial, ATP)
_____ Ratings (Instrument, AMEL, ASES, AMES, etc)
_____ Endorsements (high performance, complex, tailwheel, high altitude)
_____ Phase in Pilot Proficiency (Wings) Program
_____ Instructor Qualifications (CFI, CFI-I, MEI, AGI, IGI)
Other: _____
_____

Proficiency Goals

_____ Lower personal minimums to:

_____ Ceiling
_____ Visibility
_____ Winds
_____ Precision Approach Minimums
_____ Non-Precision Approach Minimums

_____ Fly at least:

_____ Times per month
_____ Hours per month
_____ Hours per year
_____ XC flights per year
_____ Night hours per month

_____ Make a XC trip to:
_____
Other: _____
_____

Aeronautical Training Plan

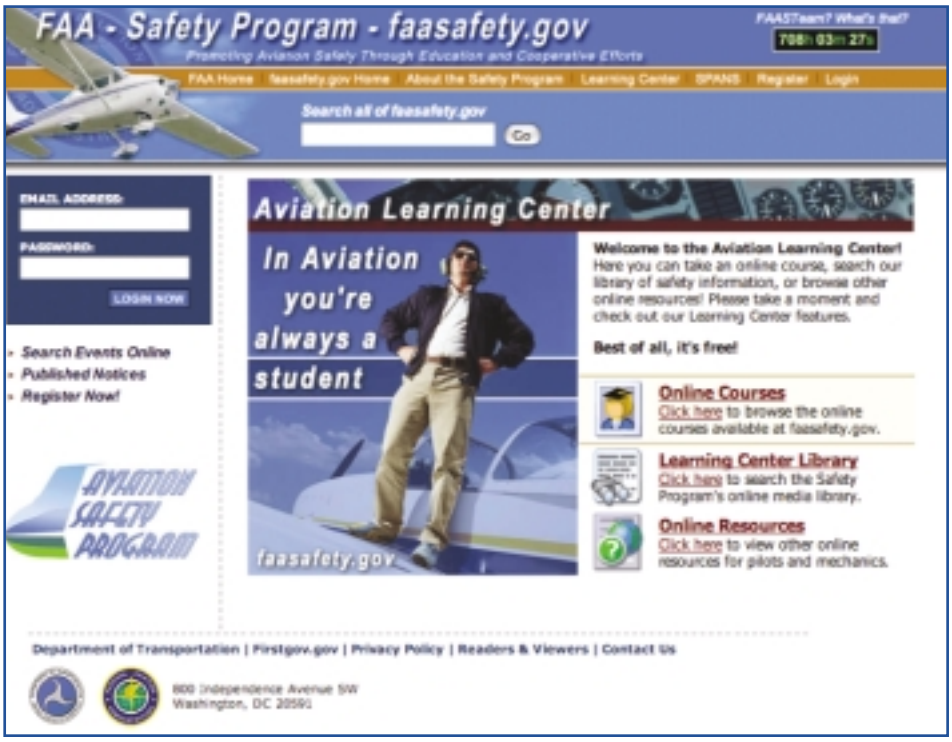
_____
_____
_____
_____
_____
_____
_____

Courses, Sources, and Resources

by Susan Parson

For many people, one of aviation's greatest benefits is the ability to explore new places. However, aviation learning and exploring doesn't need to stop when you're ground-bound, though. Next time you are navigating cyberspace instead of airspace, type <www.faasafety.gov> into your favorite browser to go direct to a new and growing aviation safety resource: the FAA's online Aviation Learning Center (ALC).

One of the three major parts of the <www.faasafety.gov> Web application, the ALC is intended to serve the aviation community as a safety learning resource offering relevant, timely, and high-quality safety content to pilots and aviation maintenance technicians (AMTs). It is also intended to provide a portal to valuable aviation safety information located elsewhere in cyberspace. Let's take a tour!



Online Courses

The purpose of the ALC's Online Courses section is to offer airmen a convenient, informative, and interesting means of continuing aviation education on a wide range of safety topics. So whenever weather or other circumstances conspire to keep you from setting a course in your aircraft, try taking a course in the ALC's Online Course catalog.

When you click the link to the Online Courses catalog, you'll see a list of course categories that cover both specific subjects, like weather, and specific audiences, such as pilots or AMTs. As you will see when we tour other parts of the ALC, category names in the Online Courses section are designed to match those in the Learning Center Library and the Online Resources, making it easier for you to find what you need.

If you're looking for flash, you won't find it here: ALC Online Courses are intended to be meaty "steak-and-potatoes" offerings that are quick to download, easy to complete, and full of useful information. A "related media" feature allows course designers to create a complete content package for ALC online course users, such as copies of relevant advisory circulars and links to other material. The goal is to populate the Online Courses catalog with courses on a number of subjects, and to offer not only full-length courses that take one hour or more to complete, but also mini-courses that can be completed in 15-30 minutes. The four existing courses illustrate these features:

The Art of Aeronautical Decision-Making includes detailed scenarios designed to stimulate thinking about situations that, just as in "real-world flying," do not necessarily lead to a clear "go" or "no go" decision. The exam for this course is primarily based on the flight scenarios.

The Flight Review Prep Guide offers a structured and thorough review of the Part 91 and *Aeronautical Information Manual* (AIM) material you need to study in preparation for the ground portion of your flight review. The related media sections for this course include Advisory Circulars (ACs), links to appropriate sections of the AIM, PowerPoint® presentations, and other supporting material. Exam questions are structured as mini-scenarios that may require you to correlate information from different regulations and AIM sections.

Based on the *FAA's Flying Light Twins Safely* "P-Pamphlet," the Multi-Engine Safety Review course is intended to provide a quick (15-20 minute) review of basic multi-engine control and performance concepts. The related media for this course includes the Multi-Engine Transition chapter of the FAA's *Airplane Flying Handbook.*

The *Navigating the DC ADIZ, TFRs, and Special Use Airspace* course offers practical information on requirements and procedures for operating in the Washington DC Metro-

politan Air Defense Identification Zone (DC ADIZ), the Washington DC Metropolitan Area Flight Restricted Zone (DC FRZ); security-based temporary flight restrictions (TFRs); and other types of special use airspace. This course includes downloadable DC ADIZ procedures guides sized to fit your kneeboard.

All courses in the ALC include downloadable course notes, and all are eligible for credit in the FAA's Pilot Proficiency Awards (WINGS) program.

More courses are in the works, so check back often to see what's new.

Learning Center Library

The second part of the Aviation Learning Center is the Learning Center Library, which is intended to give airmen convenient electronic access to a wide range of online aviation safety material developed by the FAA, other U.S. Government agencies, and the private sector. As in the other sections, material in the Learning Center Library is organized according to subject (e.g., "weather") and audience (e.g., "Airmen-Pilots") categories.

Learning Center Library content is searchable. Type keywords for the document types you want into the search box, click the "Search" box, and browse the list of documents that meet your requirements. One of the handiest features of the search function is that you can use it to search not only the library, but also information from the entire site—everything from courses to news items to events.

A primary goal of the Learning Center Library is to make text, audio, and video content developed by the FAASTeam and its predecessor, the FAA Aviation Safety Program, readily available. This material includes "P-pamphlets" and DVDs on a variety of subjects, as well as safety-oriented articles from the *FAA Aviation News* and other sources. Many Learning Center Library documents are available in both text and PDF formats, and all text documents include a "printer-friendly" version.

Online Resources

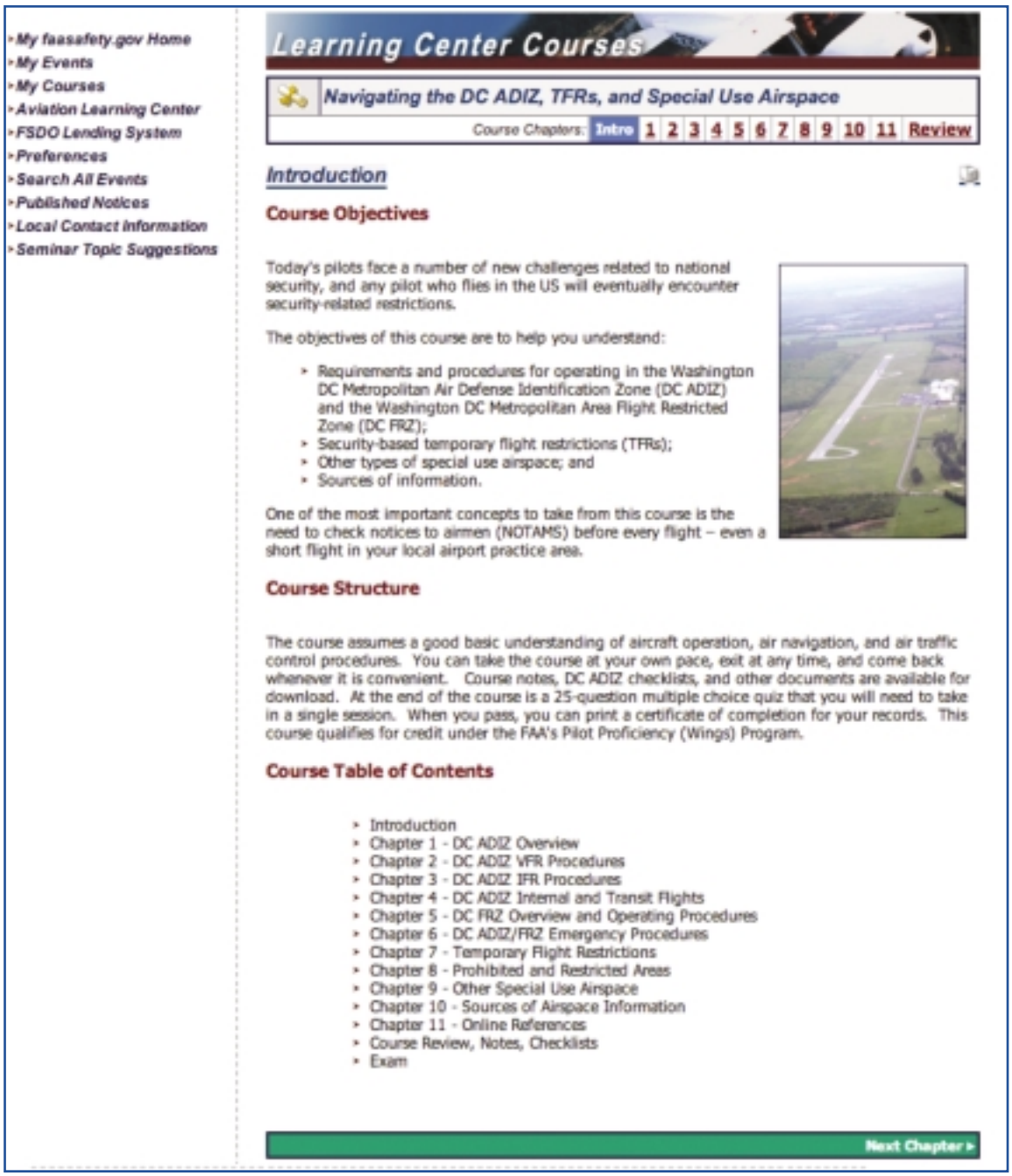
You don't have to surf the Internet very much to realize that there is a great deal of aviation safety information available in cyberspace. The purpose of the Online Resources section of the ALC is to give airmen a convenient, and structured, electronic portal to some of the key online aviation safety resource materials developed by the FAA, other U.S.Government agencies, and the private sector.

As in other sections of the ALC, subject (e.g., "Weather Informa-

tion") and audience (e.g., "Pilots-CFI") categories provide the organizational structure. Category names in Online Resources match those in Online Courses and the Learning Center Library in many cases, but some category names in Online Resources (e.g., "Organizations / Associations") are unique to this section.

Links for Online Resources take the user to aviation safety-related information located on the FAA corporate Web site <www.faa.gov>, Web sites for other U.S. government agencies (e.g., NASA, NTSB, NOAA), or sites developed by educational or non-profit organizations (e.g., Air Safety Foundation or ASF) that make safety information available at no cost to users. For example, the Online Resources section includes links to the ASF's many free online training courses on a variety of aviation safety topics.

The Online Resources section has three sub-sections: Resources for Pilots, Resources for Mechanics, and Published Safety Program Notices. The first two provide flight safety-related Web site links that are of interest to pilots or mechanics. Some of the categories to choose from include: Aircraft & Airworthiness; events; Guidance, Standards, Regulations; Tools; and Training Courses. The third site provides links to public notices that range from ATC notices to FAA charting information to local safety information.



Online Courses—such as this one on Navigating the DC ADIZ, TFRs, and Special Use Airspace—are intended to be meaty "steak-and-potatoes" offerings that are quick to download, easy to complete, and full of useful information.

When it comes to aviation safety, you can never know too much. So check in soon and check it out, and check back often as the Aviation Learning Center continues to grow!

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Note: We welcome your comments and suggestions for the Aviation Learning Center. Provide feedback via the "webmaster" link on www.faasafety.gov, or send ideas to james.e.pyles@faa.gov and susan.parson@faa.gov.