FAA Safety Team
FAASTeam

CFI Companion Document

for the WINGS Course

How to Conduct Self-Briefings

for Student & VFR Pilots

March 2021

Table of Contents

Table of Figures

List of Tables

Overview

This companion document was developed for you, the Certified Flight Instructor (CFI), so you will be aware of what your student learned in the FAA Safety Team course, "How to Conduct Preflight Self-Briefings for Student and VFR Pilots". This document provides suggestions on how to reinforce the concepts introduced in the course, expand on them, and help your student establish a solid foundation for weather analysis as they progress in their training.

The purpose of this WINGS course is to educate students and VFR pilots on how to conduct a regulatory compliant preflight self-briefing using online resources and to make smart weather decisions. Similar and complementary content can also be found in AC 91-92 "Pilot's Guide to a Preflight Briefing".

The WINGS course was developed to address:

- Confusion in the pilot and CFI community on the FAA's position on self-briefing
- Research showing pilots often form an incomplete weather picture for their intended flight, forgetting where relevant, safety-impacting weather exists, and the extent to which it can jeopardize the safety of the flight
- Feedback from the NTSB that insufficient preflight planning is an increasing occurrence or contributing factor in aviation accidents
- Research showing many pilots have knowledge gaps in basic weather concepts, interpretation, and application

As a result, this course was designed to be an interactive learning experience to:

1) Educate pilots on how to develop weather interpretation skills
2) Educate pilots on how to make decisions for safety both during preflight and inflight, with respect to weather
3) Instruct pilots on how to conduct a regulatory compliant and safe self-brief
4) Reinforce that it is permissible to use automated resources exclusively during preflight preparation
5) Dispel misconceptions and answer common questions regarding self-briefing

The course provides a list of the necessary weather and aeronautical content that the student needs to know prior to flight. It also stresses how these items relate to the flight and how the student should apply them to understand the risks that may exist since the real value in checking the weather is so the student can form an educated assessment as to the safety of the flight.

The course is divided into the following seven sections:

1) Course Introduction
2) Know Before You Go: The Importance of Preflight Planning
3) Preflight Self-Briefing
4) Phases of Flight
5) The "Go-No-Go" Decision
6) Pilot Reports (PIREPs)
7) Resources and FAQs

Your student may share with you a worksheet that is provided after the course. This after-course worksheet encourages the student to engage with their CFI to further explore the topics of the course. So you may become familiar with the worksheet, and be prepared to answer questions or demonstrate techniques presented on the worksheet, a copy is available in Appendix D: Post Course Student Worksheet.

The reminder of this document is organized as follows for sections 2 through 7 of the WINGS course[1]:

- Section title & summary
- Section key points to reinforce with your student
- Potential scenario-based exercises to conduct with your student to reinforce material covered in the section

[1] Section 1 is not included since it was just an introduction to the course.

Section 2: Know Before You Go: The Importance of Preflight Planning

Section Summary: Section 2 defines preflight planning and recognizes that preflight planning skills are just as important as flying skills. It instructs pilots to review weather (current and forecast) and aeronautical (e.g., NOTAM) information prior to flight and states the basic objective is to ensure the flight can be conducted safely. To do this, the pilot will need to understand aviation weather and its potential to affect the flight. Two charts, shown below in Figure 1, are presented to illustrate the different ways weather and NOTAMs can impact a flight.

Weather

Aircraft Performance & Endurance	• **High Temperatures -** Reduce an aircraft's ability to climb and increase the amount of runway needed to takeoff. High temperatures can reduce engine power making take off difficult or impossible • **Strong and Gusty Winds -** Strong winds aloft can slow an aircraft enough to significantly affect the range and fuel needed to reach a destination. Strong and gusty winds can cause an aircraft to suddenly lose altitude, overshoot a turn to final, and possibly cause a stall close to the ground • **Thunderstorms -** Weather along your route can cause you to deviate from your intended flight plan which may reduce your aircraft's fuel enough to make it difficult to safely reach your destination

Ability to Control the Aircraft	• **Haze** - A restriction to visibility in flight makes it hard or impossible to discern the horizon:
	  ◦ Effectively requiring you to possess instrument flying skills with the ability to control the aircraft solely from the instruments
	  ◦ The same is true of flying into a cloud or flying in rain or virga
	• **Turbulence** - Can make an aircraft hard to control and cause structural damage or failure. Turbulence can be encountered several thousand feet above and up to 20 miles laterally of convective activity. It can also be encountered near mountains when there are strong winds aloft
	• **Surface Winds** - Might be too strong to land on the available runway

Comfort	• **Turbulence** - Can scare passengers and ruin their desire to fly for good. It can also make you sick • **Heat** - Can make you/passengers dehydrated and/or ill and degrade your cognitive abilities

NOTAMs

Notices to Airmen (NOTAMs) provide aeronautical information to alert you to many things that can impact your flight. Some examples include:

- Destination airport might be closed, or will close at a specific time
- Intended landing runway closed, shortened, in bad shape
- Route changes might be needed due to Temporary Flight Restriction (TFR) or Military Operations Area (MOA) restrictions
- Airport or local activities such as an airshow or sporting event can significantly delay your landing; special procedures may be in effect
- Fuel pump/truck may be out of service at your destination which can result in you unable to safely depart (or reach an alternate airport with fuel services)
- Navigational aids or runway lights can be out of service
- Communication services might be unavailable
- Noise restrictions may prevent arrivals or departures after a specific time

Figure 1: The effects of weather and NOTAMs on your flight

Next, the prerequisites for prefight planning are listed, and Weight and Balance (W&B) is discussed in more detail:

- Aircraft identification
- Aircraft type & equipment
- Departure point
- Departure time
- Cruising speed
- Cruising altitude
- Route of flight
- Destination (VFR alternate if weather is marginal at destination)
- Time en route
- Fuel needed (including reaching alternate)
- Weight and balance

Lastly, CFR 91.103 is introduced and explained: each pilot in command shall, before beginning a flight become familiar with all available information concerning the flight. Further guidance is provided regarding using automated (online) resources:

- Pilots can conduct a regulatory compliant preflight self- briefing without contacting Flight Service.

- Pilots who prefer to call Flight Service are encouraged to conduct a self-briefing before calling. In doing so, the pilot will be familiar with the weather picture and will have the opportunity to develop an opinion on the weather risks. The Flight Service Briefing can then serve to validate the pilot's initial assessment, and the time with the Briefer can be used to focus on questions or uncertainties from the self-briefing.

Section 2 key points to reinforce with your student

- Review 91.103 together with your student.
- Preflight preparation is the critical first step in every safe flight, and is required by CFR 91.103
- Preflight decision-making skills are necessary to become a proficient pilot and should be used on the ground before flight and in the air to monitor weather in flight.
- Think of each flight as a cross country trip. Plan the amount of fuel that is needed, know starting and landing fuel totals, and landing and take-off weights. Know the W&B for full, landing and zero fuel. Identify an alternate (VFR) destination airport within range of your fuel. Discuss how having preplanned alternates are useful if weather changes unexpectedly.
- Online tools can be used to conduct a regulatory compliant (meets CFR 91.103) self-briefing. It is not necessary to call Flight Service. If there is something you do not understand, it is advisable to talk to a CFI, local expert, Flight Service Specialist; however, you should conduct a self-brief first.
- Automatic Dependent Surveillance- Broadcast (ADS-B) and inflight commercial weather services are not a substitute for preflight planning, but they provide weather and aeronautical information in the cockpit that may be used for inflight weather monitoring. Think of it as "remainder-of-the flight planning" that can employ the same thought and decision-making process used during preflight planning and build upon the decisions reached during preflight planning. Monitoring the weather inflight and making tactical and strategic decisions based on new or changing conditions is the ultimate goal.

Section 2 potential scenario-based exercises to conduct with your student

- Have your student conduct a W&B for several aircraft each with a different Center of Gravity (CG). This will allow them to see how the W&B and safe loading varies. They will be cognizant of this when moving up to different aircraft where CGs might be more forward or aft.
- Make sure your student understands the meaning of useful load. Give them a cross country trip to plan for two people.
    - Verify a correct W&B calculation, then ask your student if it's ok to bring another passenger or add a heavy bag.
    - Ask the student at what point the plane will be over-weight or out of CG. Let them experiment with carrying less fuel in the planning to accommodate more load.
    - Make sure they see that they have reduced endurance with less fuel, and they understand that there is less time to fly around weather or to an alternate airport.

- It's important to help your student understand the issues presented in these scenarios now (when they can learn the proper mitigation techniques) than be surprised by them as a newly certified pilot.

- These exercises help teach how to trade-off fuel and payload, and that there are real limits to flight endurance, what can be carried, how to load it, and how to prevent an unsafe flight.

Section 3: Preflight Self-Briefing

Section Summary: Section 3 defines preflight self-briefing as follows: A preflight self-briefing is a review, using automated tools, of all meteorological and aeronautical information that may influence the pilot in planning, altering, or canceling a proposed route of flight. The following four popular automated government resources are listed:

- 1800wxbrief.com
- Aviationweather.gov
- Tfr.faa.gov
- Notams.aim.faa.gov/NotamSearch/

It's noted that additional resources are identified later in the course in Section 7, along with the FAA's position that third party resources are acceptable and commonly used by pilots.

The benefits of developing self-briefing skills are emphasized and it's explained why the FAA values and encourages pilots to develop these skills:

- Enhances the weather interpretation and risk management skills
- Improves ability to understand real-time weather data (which is useful in the cockpit when using inflight weather resources)
- Pilots become comfortable using available (and different) weather resources
- Improves a pilot's independent "go-no-go" decision making process

As shown in Table 1 below, the three types of briefings that the FAA recognizes (Outlook, Standard, and Abbreviated) are introduced with their associated relevance relative to the time of departure:

Briefing Type	Value	Time Frame
Outlook	• Provides weather information available in advance • For planning purposes • Gives indication of weather elements that may be a factor for your flight	• 6-48 hours before flight
Standard	• Provides a complete and detailed depiction of the weather elements for the intended flight • Pilot will have a clear indication of the weather-related risk factors for the flight • On subsequent briefings, compare METARs to prior Terminal Aerodrome Forecast (TAF) to determine if the forecasts are accurate (e.g., improving as forecast)	• Within 6 hours of flight • Can be obtained multiple times for flights during dynamic weather
Abbreviated	• Provides pilot with updated information for specific elements of the weather • Focuses on the more dynamic elements of the weather that may have changed since the standard weather briefing was obtained • Helps pilot focus on the specific risk areas for the intended flight in an efficient manner • Can be used in flight for proactive reaction to changing weather	• As soon as practical before flight

Table 1: Three types of FAA briefings

The primary weather elements that a pilot would check (by briefing type) is illustrated as shown in Table 2 below:

Briefing Elements	Description	OTLK	SB	AB
Adverse Conditions	• IFR conditions, mountain obscurations, thunderstorms, icing, turbulence, volcanic ash, dust/sandstorms, tropical cyclones, high density altitude, low-level wind shear, strong low-level winds • Adverse aeronautical information, including adverse NOTAMs (airport/runway closures, air traffic delays, TFRs, etc.)	Y	Y	Y
Synopsis	Weather systems, frontal systems and/or air masses	Y	Y	
Current Conditions	• Current observations for departure, en route, and destination • Includes METARs, PIREPs, satellite, and NEXRAD imagery		Y	Y
Forecast Conditions	Forecasts for departure, en route and destination	Y	Y	Y
Winds Aloft	Winds aloft forecast (interpolate between levels) and temperature at proposed altitude		Y	
NOTAMS	NOTAMs for departure, en route and destination	Y	Y	Y
Restrictions or SUA	Prohibited areas (P40, P56) and SFRA around Washington DC	Y	Y	Y
Air Traffic Control (ATC) Delays	ATC delays and flow control advisories		Y	Y

OTLK – Outlook Briefing SB – Standard Briefing AB – Abbreviated Briefing

Table 2: Briefing elements cross-referenced to briefing type

The concept of using a self-briefing checklist during preflight planning is introduced. The pilot is encouraged to use a checklist and a weather log to review, understand and document all weather and aeronautical information pertinent to the route of flight. A sample checklist is shown in Figure 2 and

can also be found in Appendix B: Course Preflight Self-Brief Checklist. The following are key points regarding checklists:

- For online resources it is recommended to develop a checklist process similar to how you preflight an aircraft prior to flight
- Online resources are very capable, but like avionics, it is imperative you understand how to configure them to get the expected behavior:
    - When using graphical online tools, the appropriate layers and views need to be selected to see the desired output
    - If AIRMETs, SIGMETs, TFRs, ceilings, visibility, radar etc. are not selected for display they will not show, and you might conclude the route is safe, when in fact dangerous conditions may exist

Checklist Item		Source (resource, item)	Configuration & Notes
Adverse Conditions	SIGMETS		
	AIRMET		
Synopsis			
Current Weather	METAR		
	NEXRAD		
	PIREPs		
	Satellite		
TAF/Forecast Conditions			
Winds Aloft			
NOTAMS/TFRs			
P40, P56, SFRA			
ATC Delays			

Figure 2: Sample preflight self-briefing checklist

Section 3 concludes with a review of the VFR minimums as shown in Figure 4, and guidance is provided for pilots that primarily use Flight Service (or are new to self-briefing) on how to safely transition to using automated resources for self-briefing. The elements of a transition strategy are shown in Figure 3.

Figure 3: Self-briefing transition strategy

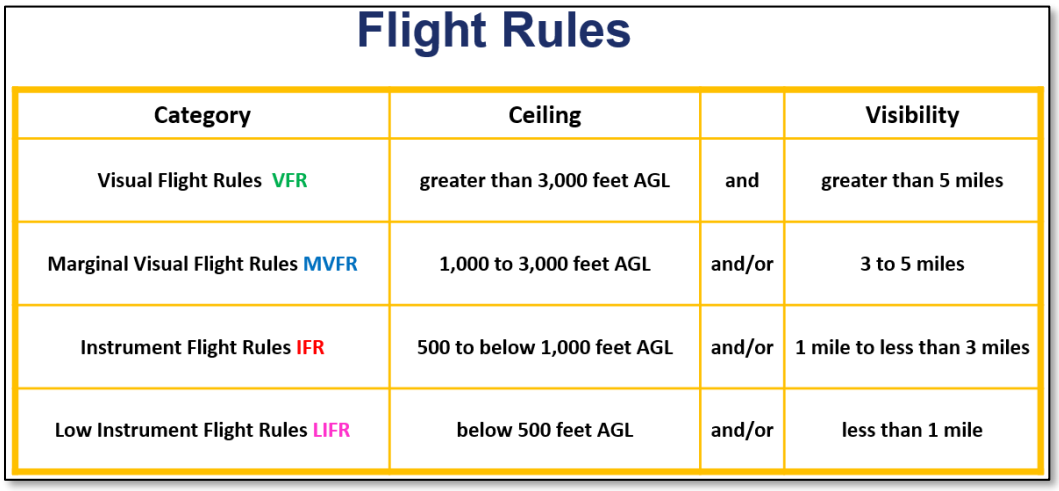


Figure 4: Flight rules

Section 3 key points to reinforce with your student

- Self-briefing skills are important skills for all pilots to possess. The ability to interpret weather data, derive the associated risks, and understand the impacts to the flight is crucial for maintaining safety. It is also a valuable skill to use when in the air as you get weather updates (e.g., ADS-B). Throughout the flight, reevaluate the weather as updates occur.
- The FAA and National Weather Service (NWS), along with commercial third parties, provide very useful online resources.

- Self-briefing with automated resources allows you to conduct a briefing that meets the requirements of CFR 91.103, but you need to ensure you collect the necessary information and apply its impact to your flight.
- Use a checklist to ensure you do not miss anything, which includes the resources you intend to use, and how they should be configured for the desired output as is illustrated in Figure 5.

Checklist Item		Source (resource, item)	Configuration & Notes
Adverse Conditions	SIGMETS	1800wxbrief.com; Interactive map	SIGMET Layer checked
	AIRMET	1800wxbrief.com; Interactive map	AIRMET layer checked, G-AIRMET selected, AIRMET Tango, Zulu, Sierra checked
Synopsis		Aviationweather.gov for prog charts (under forecasts)	Check low and Surface
Current Weather	METAR	1800wxbrief.com; Interactive map	METARs and TAFs layer selected
	NEXRAD	1800wxbrief.com; Interactive map	Radar layer selected, Use Mosaic and Composite option
	PIREPs	1800wxbrief.com; Interactive map	Pilot Reports layer checked
	Satellite	1800wxbrief.com; Interactive map	Satellite layer checked
TAF/Forecast Conditions		1800wxbrief.com; Interactive map	METARs and TAFs layer selected
Winds Aloft		Aviationweather.gov use GFA Tool (under tools)	Select forecast and winds
NOTAMS/TFRs		tfr.faa.gov/tfr2/list.html	Use TFR Map view, SUA view, and Pilotweb view
P40, P56, SFRA		tfr.faa.gov/tfr2/list.html	Use TFR Map view & SUA view
ATC Delays		fly.faa.gov/flyfaa/usmap.jsp	Check this if going into a larger busy airport
Route Brief		1800wxbrief.com; Route Brief	As a double check prior to flight

Figure 5: Sample completed preflight self-briefing checklist

- Use all three types of briefings in preparation for your flight. It helps you see the trends that are developing. Knowing of potential risks days in advance allows you to develop a "Plan B"
- If you do plan to call Flight Service, the FAA recommends you conduct a self-brief first. Doing this makes you aware of the weather picture and allows you to focus your conversation with the briefer on the items that are most relevant to the safety of the flight.
- If you are new to self-briefing, follow a transition strategy to ensure you are consistently making the right decisions regarding the weather and the safety of the flight.
- When conditions are not safe for VFR flight, online automated resources do not issue the VFR Flight Not Recommended (VNR) statement that you receive from a Flight Service telephone briefing. You must make that determination yourself when using automated resources, but when unsure you may consult a CFI or call Flight Service.

Section 3 potential scenario-based exercises to conduct with your student

- As your student prepares for upcoming flights, have them try each of the automated resources identified in the class (see Section 7: Resources & FAQs) and any third-party resources they prefer. After trying them all, have the student select the one(s) they desire to use going forward and ask the student to develop a checklist that identifies the resource used for each weather item, and the configuration needed for each resource to get the desired output.

- Have your student develop the habit of conducting multiple weather briefings for planned flights. Start by having them use automated resources to conduct a briefing three or more days in advance of the flight using the Prog (Prognosis) Charts, then conduct an Outlook Briefing the day prior, and a Standard Briefing the day of the flight. Have your student bring notes from each briefing and ask them to highlight the risk profile and their go-no-go logic for each briefing. When the forecast has changed between briefings show your student how the change alters the risk profile of the flight.
- Have your student conduct an abbreviated self-brief using automated resources prior to each flight.
- Ask your student to use the ADS-B weather to check weather from the air. Teach them to do this on cross country flights to keep abreast of changing weather en route. Educate them that NOTAMs on ADS-B only go back 30 days.
- Monitor and document your student's progress as they employ the transition strategy in Figure 3. Have your student keep a log of the go-no-go decision they reach for each self-briefing. As they validate their decision with you (Step 2 transition strategy) ask that they add the final disposition to the log. Note when there are differences of opinions between you and the student, and what element caused the deviation. Help your student understand when they drew an unsafe conclusion or missed something. Once the log shows the student consistently forms good go-no-go decisions, inform the student that their preflight skills are becoming developed and reliable.
- Inform your student that the transition strategy in Figure 3 should be followed for each advancement in their flying repertoire. When a pilot begins to fly longer distances, in a new season (winter vs summer), or a new physical region (interior plains vs coastal plains vs mountains) they should revert to this practice of self-measurement and calibrate their skills to that of their CFI or Flight Service.

Section 4: Phases of Flight

Section Summary: Section 4 explains that preflight self-briefing focuses on the weather conditions for three distinct phases of the flight: departure, en route, and destination. Each weather element of the preflight checklist provides the student with some examples and guidance on how to apply the specific elements of the self-brief to each phase of the flight:

Adverse Weather: Check SIGMETs, AIRMETs, and Center Weather Advisories to learn about dangerous weather condition to include Instrument Flight Rules (IFR), mountain obscuration, thunderstorms, icing, turbulence, high density altitude, wind shear, strong winds among others

Synopsis: The Synopsis is a bird's eye view of the major weather elements (e.g. frontal types and movement and low and high pressure systems) that may affect the flight**.** It gives an indication of what will cause the weather the pilot will see in the METARs and TAFs.

Current Weather: Determine current weather by looking at METARs, satellite, Graphical Forecast for Aviation (GFA), NEXRAD, FAA weather cameras, and PIREPs. Check ceilings and visibility, wind speed and direction, temperature, density altitude, dew point. Understand the impact of each to all phases of flight.

Forecasts: Know the forecast weather. Check TAFs and GFA. Understand the weather for all phases of the flight.

NOTAMs, TFRs & Other Hazards: Check NOTAMs, identify TFRs, SFRAs, SUA, airspace and airport limitation, obstacles, etc. Study the route to identify obstacles and terrain.

The last part of Section 4 provides guidance on how to apply the key information retrieved from the self-briefing to the phases of flight:

Wind Direction and Speed: Surface winds (direction, speed, and gust factor) drive runway selection and approach speeds. Crosswinds require determination if this will exceed the aircraft or pilot's ability. Winds aloft dictate time en route and fuel requirements, and give an indication of turbulence, wind shear, or mountain waves.

Clouds: Be cognizant of bases and the need to stay out of clouds. Recognize if bases are lowering along the route. Observe if the ceilings are developing along the route. Be careful of

low clouds at night, clouds in front of the aircraft can be difficult to see until entered. Watch for a disappearing horizon as an advance warning.

- **Visibility:** Visibility en route, even if above minimums (3SM) when departing, can diminish en route due to haze, virga, fog, sun/glare. Diminishing visibility en route can be difficult to recognize or estimate. A simple technique shown in Figure 6 can be used to estimate visibility. With aircraft level, when surface is visible just over the nose, forward visibility is approximately one mile for every thousand feet of altitude.

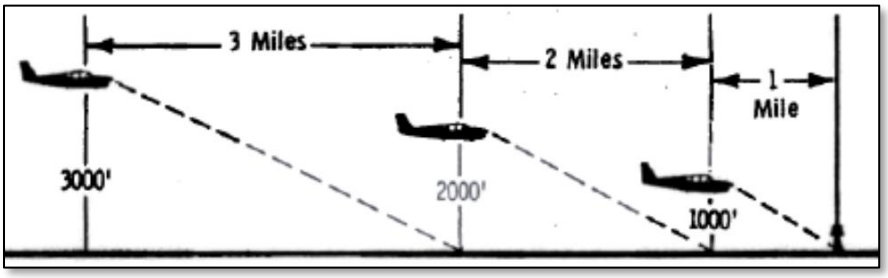


Figure 6: Technique to estimate forward visibility in flight

- **Density Altitude (DA):** Know the effect density altitude will have on your aircraft's performance when departing from airports on hot days, at high altitude in high terrain areas. Consult your Pilot Operating Handbook (POH).
- **NEXRAD:** NEXRAD images are delayed, often 2-8 minutes. Fast moving and developing storms can be a lot stronger and further along than depicted. Give them a lot of room. Stay 10 NM away from the edge of the Green band that leads a Red cell. 20 NM for Magenta. Know the dBZ level associated with the colors for your display's settings.

Section 4 key points to reinforce with your student

- When conducting a self-briefing, understand the weather for the three phases of flight: departure, en route, and destination. Draw a conclusion for all the checklist items for each phase of the flight.
- TAFs are valid for 5 Statute Mile (SM) radius around the reporting airport. While TAFs can be valuable for en route forecasts, beyond 5 SM, the weather can be different. Use other sources, such as the GFA, for an understanding of the area forecast beyond the TAFs.
- Know the weather from one hour before to one hour after your departure, passing, and landing times. If there is a significant change before/after, be careful and monitor the weather before and during the flight. Develop mitigation plans to depart early, late, or not at all. If en route have a diversion plan. Execute it if needed.
- Conduct several self-briefs in the days and hours prior to the flight. Compare current METARs to prior TAFs. Note if the prior forecasts are holding up (coming to fruition), or if the forecasts are evolving indicating that things might not be stable.

- NEXRAD images en route are delayed. If the weather is developing (growing in intensity) and fast moving, be very careful. The location and intensity can change significantly from one update to the next on your in-cockpit display. If the weather is moving toward your route plan for a wide passing margin or you might intersect the weather. Be aware the gaps in the weather can quickly fill-in. Know the dBZ intensity of your display. Depending on the settings (4 color vs internet color) you might see green correspond to a dBZ level that is above your minimums for safety. See Figure 7 for details.

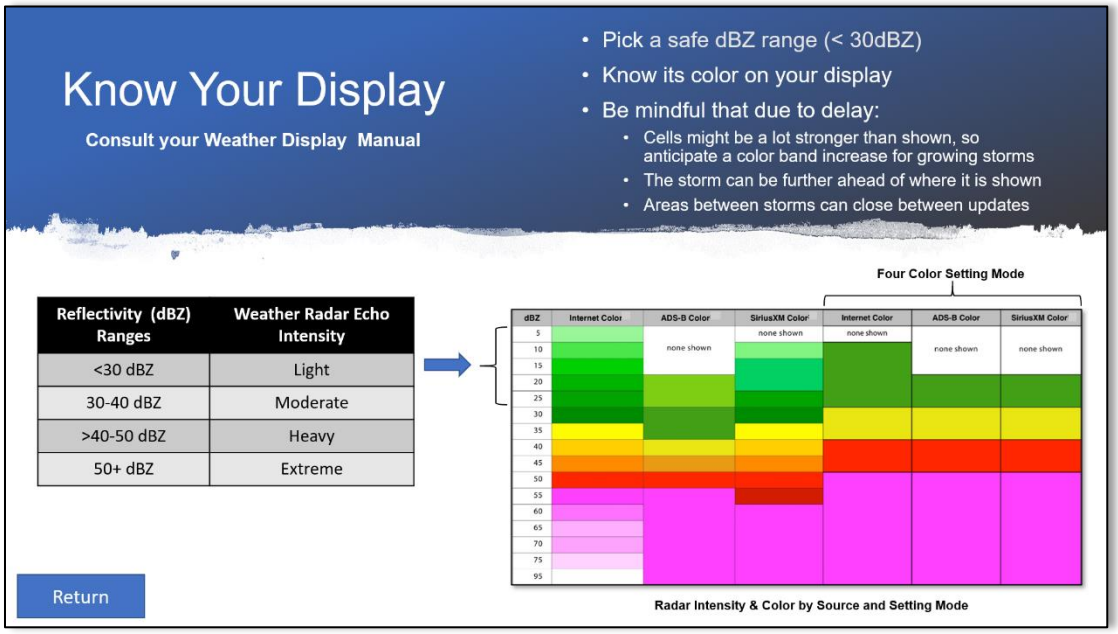


Figure 7: NEXRAD awareness

Section 4 potential scenario-based exercises to conduct with your student

- Have your student estimate visibility in flight. Use the technique described in Figure 6. Compare the results to nearby METARs. Note if there are differences.
- Conduct flights in various low visibility scenarios with your student. (e.g., a hazy day, or dark night). Fly toward the sun or away to see the effects on the visibility. At night fly to an airport surrounded by fields to experience the lack of visual cues.
- Have your student practice a 180 degree turn to escape a simulated inadvertent entry into a cloud. Use a sight-limiting device to remove reference to the ground. Do this at night too.
- Take your student on an IFR flight when flight into Instrument Meteorological Conditions (IMC) is probable. Have them practice controlling the plane while in a cloud.
- Fly with your student on a hot day to an airport that can present high density altitude and practice a high density altitude departure. If there are no high-altitude airports near you, simulate the effects of high DA at a local airport. Teach your student how to calculate DA for a given forecast so they can anticipate if it will be an issue in advance.

- Have your student study delays associated with NEXRAD while on the ground. Ask they do this when a thunderstorm is approaching their location (e.g., home). Ask they monitor the storm on their computer or tablet while watching the storm from their window. Have them notice the difference between the weather outside the window to that depicted on their screen. Reinforce that this delay can be even longer in the cockpit when receiving the weather via ADS-B.
- Have your student check weather in the air and divert to an alternate due to simulated weather or a closed runway at the planned destination. Show how planning the alternate in advance reduces stress.

Section 5: The Go-No-Go Decision

Section Summary: Section 5 describes the end state objective of the self-briefing process to reach a safe "Go-No-Go" decision. For the VFR pilot, the major reasons for the NO-GO decision include weather at, or in the vicinity of, the departure/destination airports, and along the route of flight that include:

- Low ceilings and or visibility
- Low-level wind shear, turbulence and strong or gusty winds
- Phenomena such as thunderstorms, mountain obscurations, and freezing precipitation (including freezing rain, freezing drizzle, freezing fog, or falling wet snow)
- Unfavorable PIREPs (turbulence, icing, ceilings, visibility)

Other non-weather conditions that drive a NO-GO decision include

- Conditions that exceed your personal minimums
- Your own fitness and well-being
- Limitations of the aircraft
- NOTAMs

The ability to arrive at a wise "go-no-go" decision requires a combination of knowledge and skills, tempered by experience. A few tips to make better decisions include:

- Stay within personal weather minimums
- Use a checklist to obtain complete weather information for all phases of flight
- Obtain PIREPs on actual weather conditions for the proposed route
- Use extra caution for unfamiliar or new conditions: flying in new regions (e.g., mountains, great lakes), weather patterns in a new geographic area, seasonal hazards, or a new flight activity (e.g., long cross country). Call Flight Service for extra guidance in these situations.
- Do not let ego or external pressures (important event, need to get there, don't want to disappoint friends) interfere with a safe decision. Always have the option of a "Plan B."

Take the "go-no-go" evaluation and decision process to the cockpit: when in flight, maintain awareness of changes in weather conditions, and make decisions for safety.

Section 5 concludes with four scenarios that allow the student to review weather information for a proposed flight, and then draw a conclusion regarding the risks for the flight. An opinion from the CFI is then presented. For each scenario the weather is documented on a weather log (a best practice introduced in Section 3) that shows the weather in a time/distance/location based profile view. The four scenarios summarized in Table 3 below are included in Appendix A: Course Scenarios.

Scenario	Description
1) Early Morning Cross Country	Planned departure in VFR weather when destination is IFR but forecast to improve and the flight will overfly areas of IFR en route
2) Summer in the Mountains	A planned departure at a high altitude airport on a hot day
3) Ahead of Schedule	The weather is VFR but conditions are deteriorating earlier than forecast at the destination
4) Never too Early to Plan	An important event is planned for next weekend, but the weather looks tricky for the planned flight

Table 3: Course scenarios

Section 5 key points to reinforce with your student

- Review the weather in a consistent manner and assess all the checklist items with respect to the three phases of flight, personal minimums, the limitations of the aircraft (including range), to make a decision as to the safety of the flight. Identify the specific risks presented, decide how to manage or mitigate the risks before and after take-off (have predetermined responses for known risk manifestations), and make a decision based on safety.

- Conclude the preflight planning with weather situational awareness. Use a weather log to create a time/location-based view of the weather picture. Figure 8 is a weather log product available from 1800wxbrief.com. Figure 9 is the weather log presented in the course. It can be found in Appendix C: Course Weather Log.

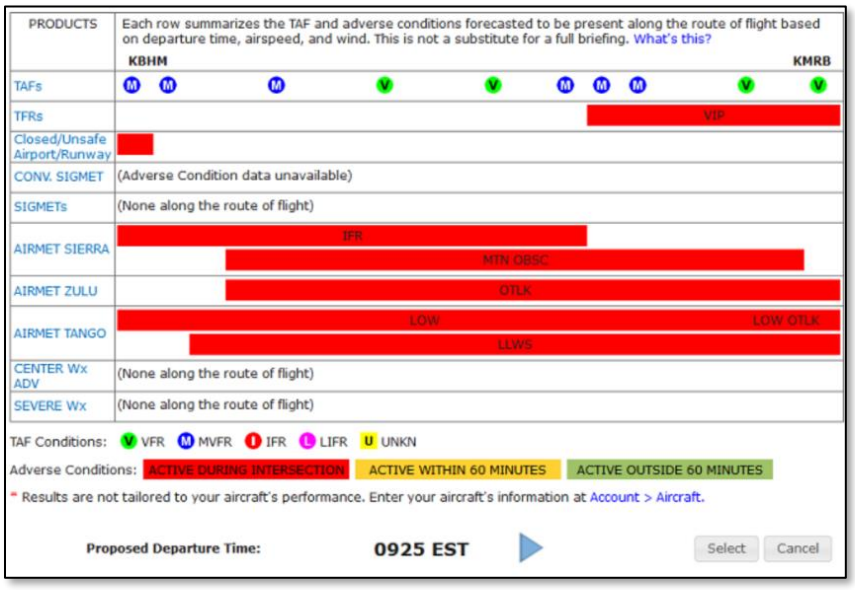


Figure 8: Weather log from 1800wxbrief.com

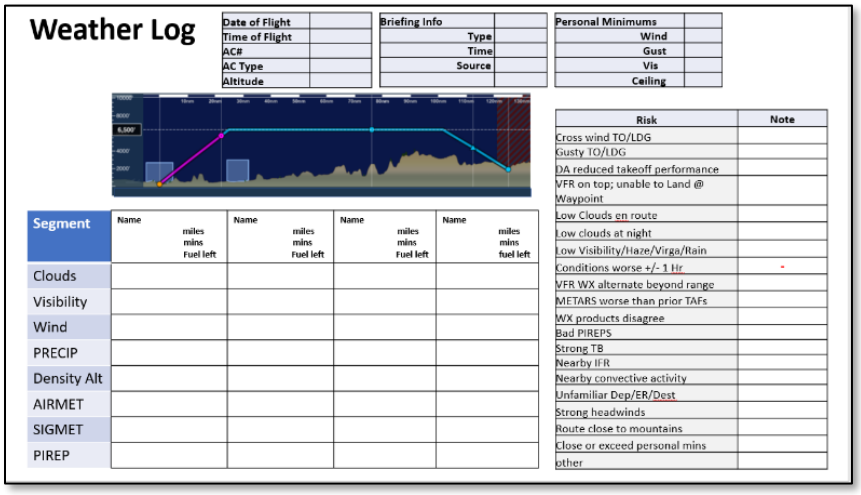


Figure 9: Weather log & risk profile from WINGS course

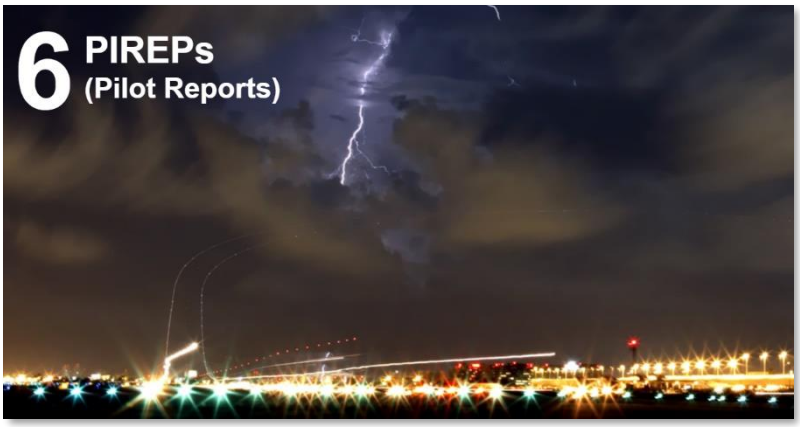
- Assess your own wellbeing as part of the preflight planning process. Refer to the *I'm Safe Checklist* shown in Figure 10.

Figure 10: I'M SAFE checklist

Section 5 potential scenario-based exercises to conduct with your student

- Add the verification (by you the CFI) of the student's preflight self-briefing notes/weather log prior to the flight as a preflight briefing/checklist item
- Have your student conduct preflight self-briefings for simulated cross country flights (with increasing durations) and or on challenging VFR days. Have them plan a weekend cross country with a departure on a Friday evening and a return on a Sunday afternoon. Review the notes from their self-briefings. Discuss the challenges and critique their logic and decision making. Explore their Plan B preparations to help develop risk management and planning skills while still under your tutelage and before the new pilot will need them in a challenging and real-life situation under pressure.
- Develop practice scenarios similar to the ones presented in this course. Have your students practice them and work to develop and refine their weather knowledge and risk management skills.
- Find out how your student plans to use their pilot's certificate and build preflight training scenarios around these mission profiles.
- Have your student document actual flight experiences to their preflight planning expectations and risk management strategy. When the actual situation did not manifest itself as expected, have them inspect their process for what was missed, if anything, and make recommendations for a modified/improved preflight preparation technique. For instance, cross reference another source to help identify the potential for disagreement.
- Encourage your student to maintain a relationship with you or other CFIs after they have completed their training, to continue to develop and grow their preflight skills. Advise that as they fly to new regions, new weather seasons, longer distances, new altitudes, they become students again and should add extra diligence and seek guidance.

Section 6: PIREPs

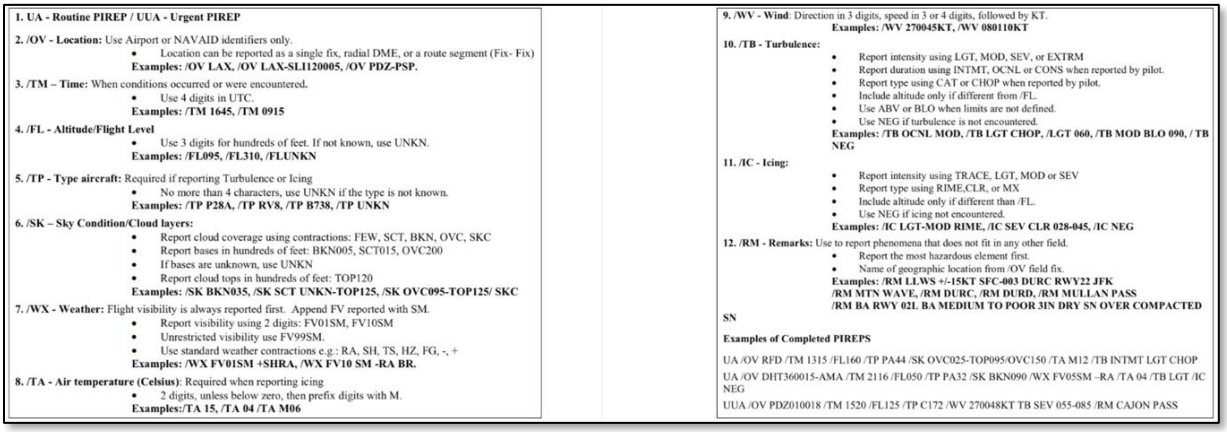


Section Summary: Section 6 emphasizes the importance of PIREPs: as the pilot, you are the best resource to provide actual weather conditions inflight and to validate if forecast weather conditions exist. PIREPs are needed from all types of aircraft, at all altitudes and all phases of flight. PIREPs are used by both VFR and IFR pilots to make "go-no-go" decisions, and plan flight routes, altitudes, and alternate airports. PIREPs enhance forecasts and improve the quality of weather data. PIREPs that report good conditions are just as important as those of adverse weather conditions because they confirm that forecast conditions actually exist.

Valuable weather conditions to provide in a PIREP:

- Icing
- Precipitation aloft
- Flight visibility
- Cloud bases/tops
- Turbulence
- Winds and temperatures at altitude
- Low-Level Wind Shear (LLWS)
- Convective activity location and movement

PIREP elements reprinted from the Chart Supplement were provided as was an example on how to read a PIREP, as shown in Figure 11 and Figure 12. Direction and a demonstration video were provided to show how to submit a PIREP.



1. UA - Routine PIREP / UUA - Urgent PIREP

2. /OV - Location: Use Airport or NAVAID identifiers only.
- Location can be reported as a single fix, radial DME, or a route segment (Fix- Fix)

Examples: /OV LAX, /OV LAX-SLI120005, /OV PDZ-PSP.

3. /TM – Time: When conditions occurred or were encountered.
- Use 4 digits in UTC.

Examples: /TM 1645, /TM 0915

4. /FL - Altitude/Flight Level
- Use 3 digits for hundreds of feet. If not known, use UNKN.

Examples: /FL095, /FL310, /FLUNKN

5. /TP - Type aircraft: Required if reporting Turbulence or Icing
- No more than 4 characters, use UNKN if the type is not known.

Examples: /TP P28A, /TP RV8, /TP B738, /TP UNKN

6. /SK – Sky Condition/Cloud layers:
- Report cloud coverage using contractions: FEW, SCT, BKN, OVC, SKC
- Report bases in hundreds of feet: BKN005, SCT015, OVC200
- If bases are unknown, use UNKN
- Report cloud tops in hundreds of feet: TOP120

Examples: /SK BKN035, /SK SCT UNKN-TOP125, /SK OVC095-TOP125/ SKC

7. /WX - Weather: Flight visibility is always reported first. Append FV reported with SM.
- Report visibility using 2 digits: FV01SM, FV10SM
- Unrestricted visibility use FV99SM.
- Use standard weather contractions e.g.: RA, SH, TS, HZ, FG, -, +

Examples: /WX FV01SM +SHRA, /WX FV10 SM -RA BR.

8. /TA - Air temperature (Celsius): Required when reporting icing
- 2 digits, unless below zero, then prefix digits with M.

Examples:/TA 15, /TA 04 /TA M06

9. /WV - Wind: Direction in 3 digits, speed in 3 or 4 digits, followed by KT.

Examples: /WV 270045KT, /WV 080110KT

10. /TB - Turbulence:
- Report intensity using LGT, MOD, SEV, or EXTRM
- Report duration using INTMT, OCNL or CONS when reported by pilot.
- Report type using CAT or CHOP when reported by pilot.
- Include altitude only if different from /FL.
- Use ABV or BLO when limits are not defined.
- Use NEG if turbulence is not encountered.

Examples: /TB OCNL MOD, /TB LGT CHOP, /LGT 060, /TB MOD BLO 090, / TB NEG

11. /IC - Icing:
- Report intensity using TRACE, LGT, MOD or SEV
- Report type using RIME,CLR, or MX
- Include altitude only if different than /FL.
- Use NEG if icing not encountered.

Examples: /IC LGT-MOD RIME, /IC SEV CLR 028-045, /IC NEG

12. /RM - Remarks: Use to report phenomena that does not fit in any other field.
- Report the most hazardous element first.
- Name of geographic location from /OV field fix.

Examples: /RM LLWS +/-15KT SFC-003 DURC RWY22 JFK
/RM MTN WAVE, /RM DURC, /RM DURD, /RM MULLAN PASS
/RM BA RWY 02L BA MEDIUM TO POOR 3IN DRY SN OVER COMPACTED SN

Examples of Completed PIREPS

UA /OV RFD /TM 1315 /FL160 /TP PA44 /SK OVC025-TOP095/OVC150 /TA M12 /TB INTMT LGT CHOP

UA /OV DHT360015-AMA /TM 2116 /FL050 /TP PA32 /SK BKN090 /WX FV05SM –RA /TA 04 /TB LGT /IC NEG

UUA /OV PDZ010018 /TM 1520 /FL125 /TP C172 /WV 270048KT TB SEV 055-085 /RM CAJON PASS

Figure 11: PIREP reporting elements from Chart Supplement

Sample PIREP

KCMH UA /OV APE 230010/TM 1516/FL085/TP BE20/SK BKN065/WX FV03SM HZ FU/TA 20/TB LGT

PIREP Decoded

PIREP CODE	Content
KCMH	KCMH (Columbus Ohio) is the closest weather reporting airport
UA	This is a routine PIREP
/OV APE 230010	Location one zero miles southwest (230 Radial) of Appleton VOR
/TM 1516	Time 1516 UTC
/FL085	Altitude eight thousand five hundred
/TP BE20	Aircraft type is a BE20 (Beech 200 Super King Air)
/SK BKN065	Base of the broken cloud layer is six thousand five hundred
/WX FV03SM HZ FU	Flight visibility 3 miles with haze and smoke
/TA 20	Air temperature is 20 degrees Celsius
/TB LGT	Light turbulence

Figure 12: How to decode a PIREP

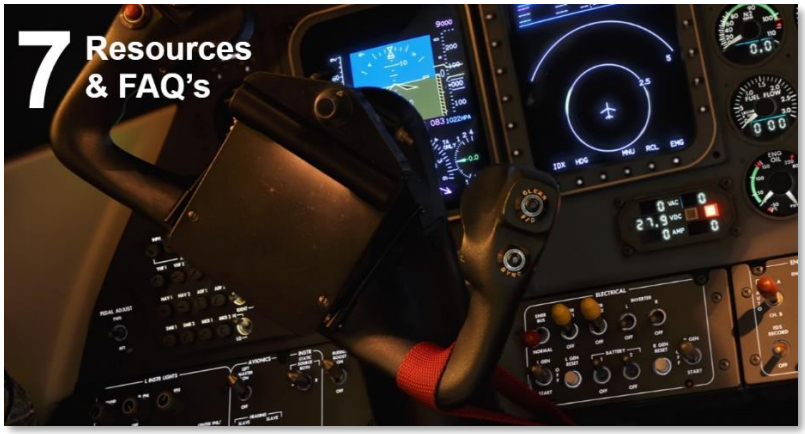
Section 6 key points to reinforce with your student

- PIREPs are an essential part of the preflight planning process and it's critical to submit them in good and bad weather.
- Submit a PIREP to Flight Service in the air and via phone on the ground for up to one hour after landing. Submit a PIREP to Air Traffic Control (ATC); for example, when you are receiving flight following services.
- The PIREP form and reporting elements can be found on the back cover of the Chart Supplement.

Section 6 potential exercises to conduct with your student

- Have your student submit a PIREP using the three different mechanisms described in the course: Flight Service, the phone after landing, and ATC.
- Have some sample PIREPs available on flash cards. Ask your student to interpret them. Make sure they can recognize an urgent PIREP.
- Encourage your student to monitor PIREPs en route to maintain weather awareness.
- Have your student use an in-cockpit device to display ADS-B PIREPs along the route. If there are no PIREPs in the vicinity of the flight, encourage them to file one.

Section 7: Resources & FAQs



Section Summary: Section 7 lists government provided automated resources (see Table 4) for self-briefings, and notes that third party resources are permitted. Since it is still possible to find FAA documents and FAA websites that state pilots should call Flight Service for a weather briefing, this section informs that FAA publications are being updated and a new Advisory Circular, *AC 91-92 A Pilot's Guide to Preflight Briefing*, is due for publication in early 2021 to reflect FAA guidance on self-briefing:

- Use automated (online) resources to conduct a regulatory compliant preflight self-briefing without contacting Flight Service.
- Pilots who prefer to call Flight Service are still encouraged to conduct a self-briefing before calling.

Publications undergoing change are listed below and can be found at the *FAA Aviation Handbooks and Manuals website*:

- AIM
- Aviation Instructor's Handbook
- Glider Flying Handbook
- Helicopter Flying Handbook
- Instrument Flying Handbook
- Instrument Procedures Handbook
- Balloon Flying Handbook
- TFR, NOTAM & SUA websites
- Risk Management Handbook
- Pilots Handbook of Aeronautical Knowledge
- Powered Parachute Flying Handbook
- Personal and Weather Risk Assessment Guide
- Use of Flight Deck Displays of Digital Weather and Aeronautical Information
- Aeronautical Information Publication (AIP)
- Helicopter Instructors Handbook

Government Resource	Description
1800wxbrief.com	Leidos Flight Service – FAA Contract Vendor
weathercams.faa.gov	FAA Weather camera network and interactive map display
aviationweather.gov	NOAA/Government website for aviation weather
Fly.faa.gov/flyfaa/usmap.jsp	FAA Flight Delay Information
nhc.noaa.gov	National Hurricane Center (NHC)
notams.aim.faa.gov/notamSearch	Federal NOTAM System (FNS)
spc.noaa.gov	NOAA Storm Prediction Center (SPC)
ssd.noaa.gov/VAAC/vaac.html	Volcanic Ash Advisory Centers (VAAC)
sua.faa.gov	Special Use Airspace (SUA)
tfr.faa.gov/tfr2/list.html	Temporary Flight Restrictions (TFR)

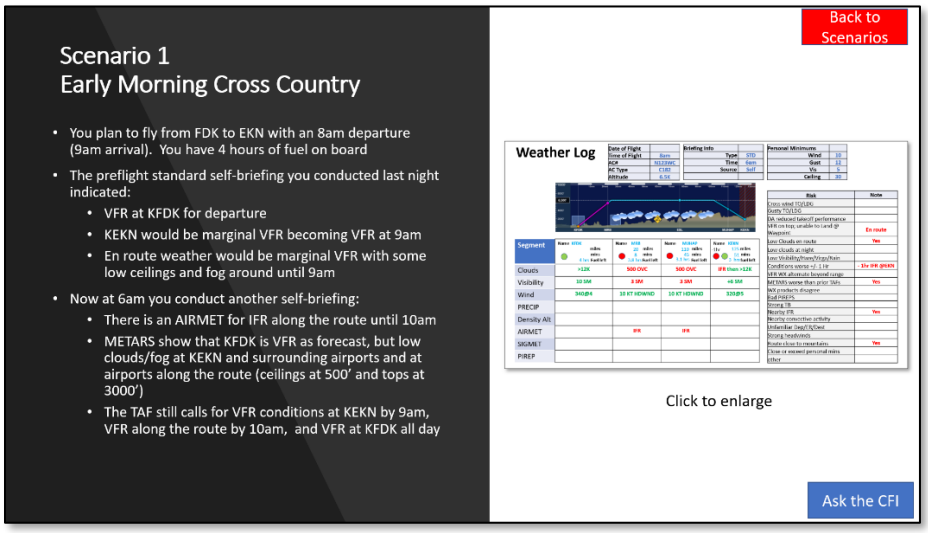
Government Resource	Description
weather.gov	National Weather Service Forecast Office (NWSFO)
weather.gov/aawu	Alaska Aviation Weather Unit (AAWU)
weather.gov/hfo	National Weather Service Forecast Office Honolulu, HI
wpc.ncep.noaa.gov	Weather Prediction Center (WPC)

Table 4: Government provided self-briefing resources

Section 7 key points to reinforce with your student

- There is no FAA requirement for self-briefings to be recorded.
- Full textual (i.e., route briefing) functionality is not required. The goal is to conduct a comprehensive preflight self-briefing. If you have done this (i.e., covered all the checklist items) using graphical tools, you do not need to use full textual route briefing functionality. However, using the full textual route briefing, is a good idea as a double check that you have not missed something in your own workflow.
- If you plan to call Flight Service, then use the route briefing functionality from 1800wxbrief.com (or route brief functionality from a third-party application that shares your 1800wxbrief.com credentials with Flight Service) to allow the specialist to see your briefing details, which may shorten the wait time (check 1800wxbrief.com for information on priority service).
- If you have used just the graphical functionality on 1800wxbrief.com or third-party sites and call Flight Service, they will not have visibility into your briefing history.
- Pilots' self-briefing history is not available to Flight Service Specialists in Alaska.

Appendix A: Course Scenarios

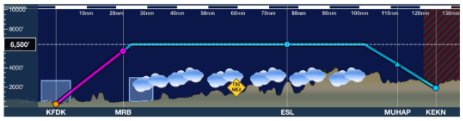


Weather Log

Date of Flight	
Time of Flight	8am
AC#	N123WC
AC Type	C182
Altitude	6.5K

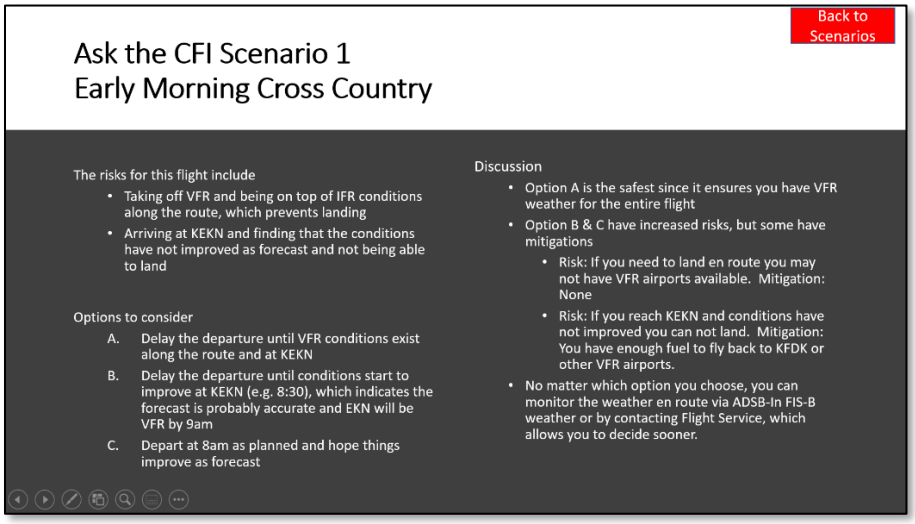
Briefing Info	
Type	STD
Time	6am
Source	Self

Personal Minimums	
Wind	10
Gust	12
Vis	5
Ceiling	30



Segment	Name KFDK miles mins 4 hrs Fuel left	Name MRB 20 miles 8 mins 3.8 hrs Fuel left	Name MUHAP 110 miles 45 mins 3.1 hrs Fuel left	Name KEKN -1hr 125 miles 51 mins 3 hrs fuel left
Clouds	>12K	500 OVC	500 OVC	IFR then >12K
Visibility	10 SM	3 SM	3 SM	+6 SM
Wind	340@4	10 KT HDWND	10 KT HDWND	320@5
PRECIP				
Density Alt				
AIRMET		IFR	IFR	
SIGMET				
PIREP				

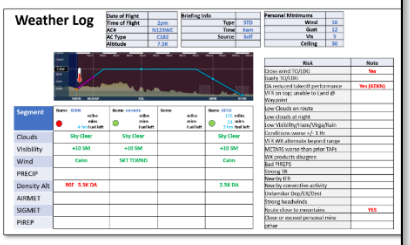
Risk	Note
Cross wind TO/LDG	
Gusty TO/LDG	
DA reduced takeoff performance	
VFR on top; unable to Land @ Waypoint	En route
Low Clouds en route	Yes
Low clouds at night	
Low Visibility/Haze/Virga/Rain	
Conditions worse +/- 1 Hr	- 1hr IFR @EKN
VFR WX alternate beyond range	
METARS worse than prior TAFs	Yes
WX products disagree	
Bad PIREPS	
Strong TB	
Nearby IFR	Yes
Nearby convective activity	
Unfamiliar Dep/ER/Dest	
Strong headwinds	
Route close to mountains	Yes
Close or exceed personal mins	
other	



Scenario 2
Summer in the Mountains

- You plan to fly from EKN to KFDK with a 2pm departure. You have 4 hours of fuel on board and 3 adult passengers and baggage. The plane will be at max weight for takeoff
- The outlook self-briefing you conducted last night indicated good VFR all day
- Now at 6am you conduct another self-briefing:
  - Conditions and forecasts still look great for a VFR flight
  - The METARs are showing that KEKN is at 70 degrees F with a density altitude of 2.8K'
  - The TAF indicates VFR conditions for the entire route, the forecast temperature at 2pm is expected to reach 95 degrees F, and a density altitude of 5.5K' at KEKN with the wind forecast of 340@10
  - There is a NOTAM that runway 14-32 will be closed at noon

Back to Scenarios



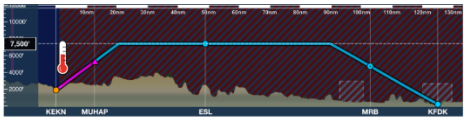
Click to enlarge

Weather Log

Date of Flight	
Time of Flight	2pm
AC#	N123WC
AC Type	C182
Altitude	7.5K

Briefing Info	
Type	STD
Time	6am
Source	Self

Personal Minimums	
Wind	10
Gust	12
Vis	5
Ceiling	30



Segment	Name KEKN miles mins 4 hrs Fuel left	Name enroute miles mins Fuel left	Name miles mins Fuel left	Name KFDK 125 miles 51 mins 3 hrs fuel left
Clouds	Sky Clear	Sky Clear		Sky Clear
Visibility	+10 SM	+10 SM		+10 SM
Wind	Calm	5KT TLWND		Calm
PRECIP				
Density Alt	90F 5.5K DA			2.5K DA
AIRMET				
SIGMET				
PIREP				

Risk	Note
Cross wind TO/LDG	Yes
Gusty TO/LDG	
DA reduced takeoff performance	Yes (KEKN)
VFR on top; unable to Land @ Waypoint	
Low Clouds en route	
Low clouds at night	
Low Visibility/Haze/Virga/Rain	
Conditions worse +/- 1 Hr	
VFR WX alternate beyond range	
METARS worse than prior TAFs	
WX products disagree	
Bad PIREPS	
Strong TB	
Nearby IFR	
Nearby convective activity	
Unfamiliar Dep/ER/Dest	
Strong headwinds	
Route close to mountains	YES
Close or exceed personal mins	
other	

Back to Scenarios

Ask the CFI Scenario 2
Summer in the Mountains

The risks for this flight include

- Taking off from a high-altitude airport with a heavy payload and a high-density altitude
- Airport surrounded by higher terrain which can be a problem if you have a reduced rate of climb
- Preferred runway 32 is closed, so there is a crosswind on takeoff which will not help to reduce takeoff distance when compared to a headwind

Options to consider

A. Depart earlier in the morning or later that evening when temperatures are cooler
B. Depart before noon to utilize runway 32 where the headwind will reduce takeoff distance
C. Reduce the payload

Discussion

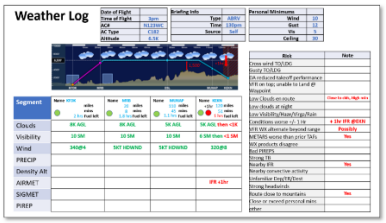
- During high density altitude (DA) situations it's imperative that you:
  - Consult your POH to determine the expected performance of your aircraft, and add a margin of safety for older aircraft since they often do not have the same performance as new aircraft (e.g. increase POH numbers by 50%)
  - Verify that your aircraft can safely take off on the available runway and climb at a sufficient rate to clear obstacles and rising terrain
  - Understand and follow the proper leaning procedures to maximize your available power on takeoff
- Option A, B, and C are all good options for managing high density altitude performance:
  - Departing during cooler temperatures will also aid in passenger comfort.
  - Always consult the POH to ensure you can safely depart and work with your CFI for DA training guidance

Scenario 3
Ahead of Schedule

- You plan to fly from KFDK to KEKN with a 3pm departure and a 4pm arrival. You have 2 hours of fuel left in the plane after your last fight and plan to fuel at KEKN since the fuel is less expensive there
- The outlook self-briefing you conducted last night indicated good VFR until the early evening
- At 12pm you conduct a standard self-briefing:
  - Conditions at KFDK and KEKN are VFR with ceilings at or above 8K' AGL at FDK and 5K' AGL at KEKN
  - The TAF indicates that conditions will begin to deteriorate at KEKN and go below VFR at 5pm. KMRB and KFDK are forecast to stay VFR until 8pm
- At 1:30pm you conduct an abbreviated self-briefing
  - The clouds are 1K' lower than the prior TAF had predicted
  - The TAFs still calls for good VFR until 5pm, but with lower ceilings than previously forecast

Back to Scenarios

Weather Log



Click to enlarge

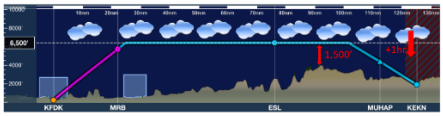
Ask the CFI

Weather Log

Date of Flight	
Time of Flight	3pm
AC#	N123WC
AC Type	C182
Altitude	6.5K

Briefing Info	
Type	ABRV
Time	130pm
Source	Self

Personal Minimums	
Wind	10
Gust	12
Vis	5
Ceiling	30



Segment	Name KFDK — 2 hrs Fuel left	Name MRB — 20 miles, 8 mins, 1.8 hrs Fuel left	Name MUHAP — 110 miles, 45 mins, 1.1 hrs Fuel left	Name KEKN — +1hr 120 miles, 51 mins, 1 hrs fuel left
Clouds	8K AGL	8K AGL	5K AGL	5K AGL then <1K
Visibility	10 SM	10 SM	10 SM	6 SM then <1 SM
Wind	340@4	5KT HDWND	5KT HDWND	320@8
PRECIP				
Density Alt				
AIRMET				IFR +1hr
SIGMET				
PIREP				

Risk	Note
Cross wind TO/LDG	
Gusty TO/LDG	
DA reduced takeoff performance	
VFR on top; unable to Land @ Waypoint	
Low Clouds en route	Close to clds, High mtn
Low clouds at night	
Low Visibility/Haze/Virga/Rain	
Conditions worse +/- 1 Hr	+ 1hr IFR @EKN
VFR WX alternate beyond range	Possibly
METARS worse than prior TAFs	Yes
WX products disagree	
Bad PIREPS	
Strong TB	
Nearby IFR	Yes
Nearby convective activity	
Unfamiliar Dep/ER/Dest	
Strong headwinds	
Route close to mountains	Yes
Close or exceed personal mins	
other	

Back to Scenarios

Ask the CFI Scenario 3
Ahead of Schedule

The risks for this flight include

- Conditions at KEKN are forecast to be below VFR shortly after your landing time
- Conditions are starting to deteriorate earlier than forecast
- If you are unable to land at KEKN, you may not have enough fuel to reach VFR weather
- If you try to land and are unable, you have higher terrain that may become, obstructed by clouds
- Less than 1.5K' clearance above high terrain, if clouds lower will be squeezed, can get trapped

Options to consider

A. Depart earlier
B. Add fuel at KFDK which will allow you to reach VFR weather if conditions deteriorate at KEKN
C. Monitor the weather en route and decide sooner than later if a safe landing is possible or if you should deviate

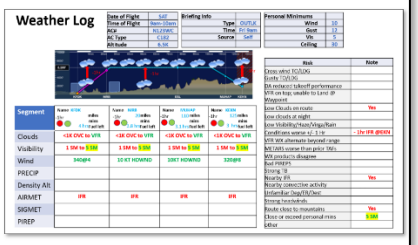
Discussion

- When conditions are forecast to deteriorate shortly after arrival, be aware that bad weather can arrive early making landing unsafe
- By conducting several weather briefings (standard and abbreviated) in the hours before your flight you can see if the weather is starting to deteriorate sooner than forecast. Look for TAFs being revised or METARs worse than prior TAFs forecast
- When flying longer distances toward bad weather, never arrive with low fuel. Depart with extra fuel or landing mid way to add fuel to give yourself options. Always have enough fuel to reach VFR weather if the destination's forecast is in doubt
- Be careful descending into valleys when weather is deteriorating. If you can not land you may now have obscured mountains
- Beware of high terrain en route and lowering clouds; safe distance between each may be compromised
- Option A, B, and C are all good options for managing the weather scenario for this flight

Scenario 4
Never too Early to Plan

- It's Sunday and you're planning a flight next Saturday from KFDK to KEKN to attend your cousin's wedding. The wedding is at 12pm, you plan to depart at 9am, and arrive at 10am. The commercial weather sites are calling for rain on Friday at KFDK and KEKN, but Saturday looks promising
- By Wednesday you start looking at the prog charts and see the weather has slipped a day and is now forecast to rain on Saturday as a front transitions through the area from west to east. Friday, however, is looking better
- By Thursday, the forecast is the same, rain on Saturday at KFDK and KEKN
- By Friday morning the prog charts show more details and it looks like the front may pass KEKN and KFDK a little earlier. Conditions are forecast to deteriorate by 9pm Friday evening but it's possible that VFR conditions may develop by 10am Saturday
- Attending the wedding is important and you do not want to miss it

Back to Scenarios



Click to enlarge

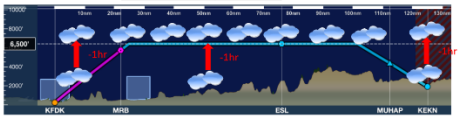
Ask the CFI

Weather Log

Date of Flight	SAT
Time of Flight	9am-10am
AC#	N123WC
AC Type	C182
Altitude	6.5K

Briefing Info	
Type	OUTLK
Time	Fri 9am
Source	Self

Personal Minimums	
Wind	10
Gust	12
Vis	5
Ceiling	30



Segment	Name KFDK -1hr 4 hrs Fuel left	Name MRB -1hr 20 miles 3.8 hrs Fuel left	Name MUHAP -1hr 110 miles 3.1 hrs Fuel left	Name KEKN -1hr 125 miles 3 hrs Fuel left
Clouds	<1K OVC to VFR	<1K OVC to VFR	<1K OVC to VFR	<1K OVC to VFR
Visibility	1 SM to 5 SM	1 SM to 5 SM	1 SM to 5 SM	1 SM to 5 SM
Wind	340@4	10 KT HDWND	10KT HDWND	320@8
PRECIP				
Density Alt				
AIRMET	IFR	IFR	IFR	IFR
SIGMET				
PIREP				

Risk	Note
Cross wind TO/LDG	
Gusty TO/LDG	
DA reduced takeoff performance	
VFR on top; unable to Land @ Waypoint	
Low Clouds en route	Yes
Low clouds at night	
Low Visibility/Haze/Virga/Rain	
Conditions worse +/- 1 Hr	- 1hr IFR @EKN
VFR WX alternate beyond range	
METARS worse than prior TAFs	
WX products disagree	
Bad PIREPS	
Strong TB	
Nearby IFR	Yes
Nearby convective activity	
Unfamiliar Dep/ER/Dest	
Strong headwinds	
Route close to mountains	Yes
Close or exceed personal mins	5 SM
other	

Back to Scenarios

Ask the CFI Scenario 4
Never too Early to Plan

The risks for this flight include

- There is a front moving through the area that will bring marginal to IFR conditions
- The time frame for improvement is right when you would need to depart so any delays in improvement would jeopardize getting to the wedding on time
- This is an important event and there is pressure to get there on time
- By waiting for the weather to improve there is risk of missing the window to drive, and then be pressured to fly in unsafe conditions to avoid missing the wedding

Options to consider

A. Depart on Friday while the weather is good
B. If Friday is not an option, check the weather again later in the evening on Friday. If it still looks possible to fly, set a cut-off time for Saturday morning that allows time to drive if flying is not safe

Discussion

- Conducting multiple weather checks days in advance gives insight to the challenges that exist. Utilize all available products as they become relevant (e.g., prog charts are useful days in advance)
- When there is a set schedule, there are new elements of risk:
  - Have a Plan B that offers safe options other than flying
  - Don't forget to look at both ends of the trip, getting there is half the objective, getting home is the other half
  - Plan B can include leaving earlier/later, choosing an alternate mode of transportation, rescheduling the event, or not going
  - Set expectations with passengers regarding Plan B, and establish that you make the final call, and when
  - Strive to build a reputation as a careful risk adverse pilot. Once you scare someone, they will likely never fly with you again
- Be aware that as one aspect of weather improves it may lead to a degradation of another aspect. For example, once a front passes and ceiling/visibility improves, strong winds/turbulence can develop
- Option A and B are both good options for managing the weather scenario for this flight

Appendix B: Course Preflight Self-Brief Checklist

Checklist Item		Source (resource, item)	Configuration & Notes
Adverse Conditions	SIGMETS		
	AIRMET		
Synopsis			
Current Weather	METAR		
	NEXRAD		
	PIREPs		
	Satellite		
TAF/Forecast Conditions			
Winds Aloft			
NOTAMS/TFRs			
P40, P56, SFRA			
ATC Delays			

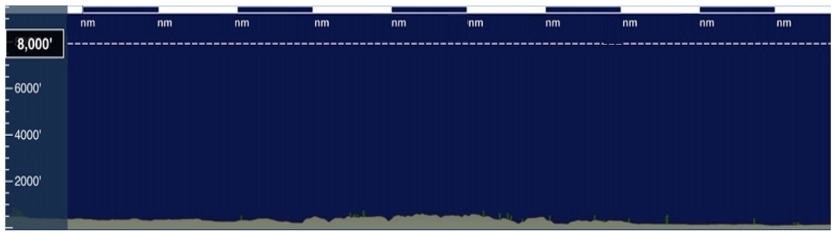
Appendix C: Course Weather Log

Weather Log

Date of Flight	
Time of Flight	
AC#	
AC Type	
Altitude	

Briefing Info	
Type	
Time	
Source	

Personal Minimums	
Wind	
Gust	
Vis	
Ceiling	



Segment	Name miles mins Fuel left	Name miles mins Fuel left	Name miles mins Fuel left	Name miles mins fuel left
Clouds				
Visibility				
Wind				
PRECIP				
Density Alt				
AIRMET				
SIGMET				
PIREP				

Risk	Note
Cross wind TO/LDG	
Gusty TO/LDG	
DA reduced takeoff performance	
VFR on top; unable to Land @ Waypoint	
Low Clouds en route	
Low clouds at night	
Low Visibility/Haze/Virga/Rain	
Conditions worse +/- 1 Hr	
VFR WX alternate beyond range	
METARs worse than prior TAFs	
WX products disagree	
Bad PIREPs	
Strong TB	
Nearby IFR	
Nearby convective activity	
Unfamiliar Dep/ER/Dest	
Strong headwinds	
Route close to mountains	
Close or exceed personal mins	
other	

Appendix D: Post Course Student Worksheet

FAA Safety Team
FAASTeam

How to Conduct Preflight Self-Briefings for Student and VFR Pilots

Post Course Worksheet

Share this worksheet with your CFI and engage them to assist you with any items you would like to explore further. As with any new skill, practice and practical application are important to develop and engrain the skills and concepts.

A note for your CFI: This post course worksheet is from the FAAST Team WINGS course *How to Conduct Preflight Self-Briefing for Student and VFR Pilots*. There is a companion document to this course for CFIs to aid you in understanding the course content and to provide guidance on how to reinforce and develop your student's preflight and inflight weather decision making skills for the topics covered in this course. This CFI companion document can be found at: https://www.faasafety.gov/gslac/ALC/libview_normal.aspx?id=265511

The following topics were covered in this course:

- You can conduct a regulatory compliant self-briefing by using automated resources
- If you plan to call Flight Service, conduct a self-briefing first
- Set personal minimums
- Us a checklist to self-brief
  - Specifies weather and aeronautical elements
  - Lists automated resource you plan to use
  - Specifies configuration for each resource to display desired output
- Use a weather log to document the significant weather
  - Depicts the type of weather
  - Shows when/where it is forecast along the route
- Verify weather for departure, en route, and destination
- Understand the limitations of NEXRAD:
  - Images are delayed
  - Know image legend: intensity can be depicted differently on different devices
  - Assume weather has moved/intensified when near strong/growing storms

- Develop a list of risks for your flight
- Have a mitigation plan for risks that may jeopardize the safety of the flight
- Apply self-briefing skills in the cockpit
    - Continuously monitor the weather
    - Make decisions for safety.
    - Verify flight conditions visually, don't just rely on METARS in flight
- Use Prog (Prognosis) Charts to monitor weather days in advance of your flight
- If your flight has a "must-be-there" element
    - Have a Plan-B
    - Avoid being pressured into flying in dangerous conditions
- Assess your own airworthiness prior to flight. Ensure you are fit to fly
- Provide PIREPs to help other pilots and weather forecasters
- Follow a transition to self-briefing
    - Validate your process and "no-go-no" logic with a CFI or call Flight Service
    - When you consistently make good decisions, then you have developed the skills and judgment necessary to self-brief
- Consult a CFI (or call Flight Service) when in doubt or you plan to do something new

The following are examples of practical things you can work on with your CFI to apply the concepts in this course to your self-briefing process and cockpit decision making.

Practice Item	Done
Work with your CFI to set personal minimums and have a strategy on how/when to advance.	
Develop your self-briefing checklist. Identify the automated resources you will use and how each resource would be configured for each checklist item. Conduct a self-brief in front of your CFI. Have your CFI critique your briefing. Alternately, call Flight Service after the self-brief and see if you missed anything. If so, analyze your approach and make adjustments.	
Identify the closest airport(s) to you that can present high density altitude on a hot day. Fly to one of these airports with a CFI on a hot day and practice a high Density Altitude (DA) departure. If there are no high-altitude airports near you, have your CFI simulate the effects of high DA at a local airport.	
Study delays associated with NEXRAD while on the ground. When a thunderstorm is approaching your location (eg your home), monitor the storm on your computer or tablet while watching the storm from your window. Notice the difference in the weather outside your window to that depicted on the screen. This delay can be even longer in the cockpit when receiving the weather via ADS-B.	
Conduct flights in various low visibility scenarios with your CFI (e.g. a hazy day, or dark night). Fly toward the sun or away to see the effects on the visibility. At night, fly to an airport surrounded by fields to experience the lack of visual clues. Develop the skills needed to recognize reduced visibility during the briefing, and develop the skills needed to handle, avoid, or escape from these conditions.	
As a VFR pilot you should not put yourself in a position to inadvertently enter IFR/IMC. However, if this does happen to you, you should be able to safely get out of IMC. Work with your instructor to simulate entry in IMC and hone the skills to control your aircraft as you execute an evasive maneuver.	
Work with your instructor to know how to communicate with ATC in the event you encounter deteriorating weather on your flight and need help.	
Practice submitting PIREPs.	