

The National FAA Safety Team Presents

Topic of the Month – August Pre-flight & In-flight Weather Resources

Presented to: WAFC and Friends

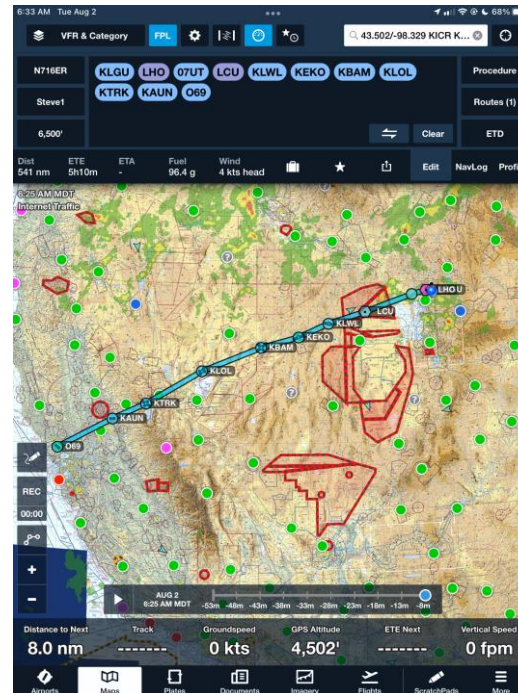
By: Stephen Bateman, CFI

Date: August 8th, 2022

Produced by AFS-850
The FAA Safety Team (FAASafetyTeam)



Federal Aviation
Administration



Welcome

- **Steve Bateman, CFI, AOPA Director of Flying Clubs**
 - Safety and Maintenance Officer, Westminster Aerobats Flying Club
 - FAASTeam lead representative, Baltimore FSDO
- **Our monthly in-and-out safety meeting using the FAASTeam Topic of the Month**
- **Sponsor Acknowledgment – WAFC, AOPA, FAASTeam, Baltimore FSDO**
- **WINGS Credit: Yes...but give me a day...**
- **Probably no time for questions, but send email:
steve.bateman@aopa.org**



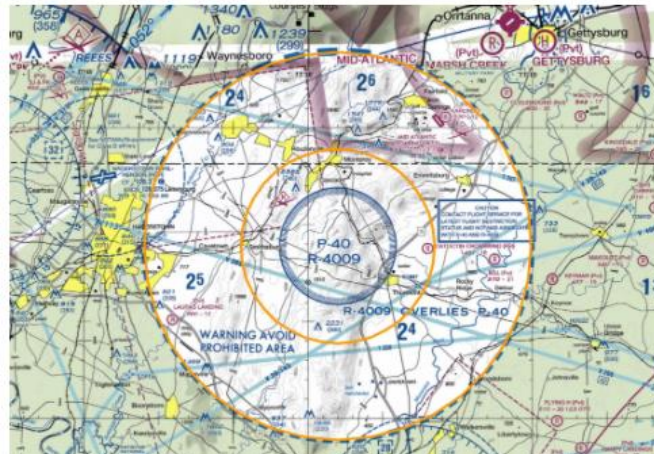
Check NOTAMS!



VIP TFR OVER WILIMINGTON, DE BEGINNING
TODAY SATURDAY, MARCH 6, 2021



VIP TFR OVER HAGERSTOWN/THURMONT, MD
BEGINNING FRIDAY, APRIL 2, 2021
(((CHANGE IN DEPARTURE TIME)))



Want a copy of these slides?

- **We provide links to these ToM presentations in the Club Connector safety section**
 - Search for AOPA Club Connector and sign-up

🏠 > Flying Clubs > Club Connector Newsletter

FLYING CLUB CONNECTOR NEWSLETTER

Your source for the latest news on flying clubs all over the country. AOPA's research has shown us that flying club leaders are hungry to learn more about the practical experiences of other clubs. So, we have created this monthly e-newsletter.

[SUBSCRIBE](#)

ARTICLES BY TOPIC

NEWS FROM HQ	QUESTION OF THE MONTH	CLUB SPOTLIGHT
AIRCRAFT SPOTLIGHT	SAFETY	EVENT SPOTLIGHT



Overview

- **Weather related accidents – where do things go bad?**
- **Pre-take-off weather resources**
 - Not a comprehensive list
 - Sample of government resource available today
 - Many third-party resources are also available
- **In-flight weather resources**
 - Not a comprehensive list
 - Sample of resources available today
- **Pre-landing weather resources**
 - ATIS, AWOS, Remarks (DA, Lighting, distant NE...)




Resources

- **AC 00-6B Aviation Weather**

- **AC 00-45H Aviation Weather Service**

- Comprehensive list of FAA, NWS services and products
- Includes FIS-B (Flight Information Service-Broadcast) products available through ADS-B in data link

**Advisory Circular**

Subject: Aviation Weather **Date:** 8/23/16 **AC No:** 00-6B
Initiated by: AFS-400 **Change:**

This advisory circular (AC) was published by the Federal Aviation Administration (FAA) Flight Standards Service (AFS), with contributions from the National Weather Service (NWS). The publication began in 1943 as CAA Bulletin No. 25, Meteorology for Pilots, which at the time contained weather knowledge considered essential for most pilots. As aircraft flew farther, faster, and higher, and as meteorological knowledge grew, the bulletin became obsolete. It was revised in 1954 under a new title, The Pilots' Weather Handbook, and updated again in 1965. In 1975 it was revised under its current title.

Previous editions have suffered one common problem—they dealt in part with weather services that continually change, in keeping with current techniques and service demands. As a result, each edition was somewhat outdated almost as soon as it was published, its obsolescence growing throughout the period it remained in print.

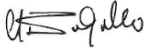
In 1975, in order to alleviate this problem, the authors completely rewrote the AC. They streamlined it into a clear, concise, readable book, and omitted all reference to specific weather services.

The 1975 text remained valid and adequate for many years. Its companion manual, the current edition of AC 00-45, Aviation Weather Services, supplements this AC. In 2015, this supplement was updated concurrently with this text. This was done to reflect changes brought about by new products and services, particularly since this information is now available through the Internet. The companion AC describes current weather services and formats, and uses real world examples of weather graphics and text products.


The two manuals can be downloaded for free via the Internet in PDF format. Print versions are also sold separately at nominal cost, allowing pilots the opportunity to own a reference copy of the supplement to keep current with aviation weather services.

New scientific capabilities now necessitate an update to this AC. In 1975, aviation users were not directly touched by radar and satellite weather. In 2016, much of what airmen understand about the current atmosphere comes from these important data sources. This AC is intended to provide basic weather information that all airmen must know. This document is intended to be used as a resource for pilot and dispatcher training programs.

This AC cancels AC 00-6A, Aviation Weather for Pilots and Flight Operations Personnel.


John Barbagallo
Deputy Director, Flight Standards Service

11/14/16 AC 00-45H

**Advisory Circular**

Subject: Aviation Weather Services **Date:** 11/14/16 **AC No:** 00-45H
Initiated by: AFS-400 **Change:**

The Federal Aviation Administration (FAA) publishes Advisory Circular (AC) 00-45, Aviation Weather Services. This publication supplements its companion manual, AC 00-6, Aviation Weather, which documents weather theory and its application to aviation.

Revision H of AC 00-45 (AC 00-45H) provides an improved organization of aviation weather information. The document is organized using the FAA's three distinct types of weather information: observations, analyses, and forecasts. Within this construct, AC 00-45H explains U.S. aviation weather products and services. It provides details when necessary for interpretation and to aid usage.

In the past decade, access to aviation weather products has greatly improved with the increase of flight planning services and weather websites. The experience of listening to a weather briefing over a phone while trying to write down pertinent weather information becomes less tolerable when the reports are easily obtainable on a home computer, tablet computer, or even a smart phone. To see weather along your route using a graphic of plotted weather reports combined with radar and satellite is preferable to trying to mentally visualize a picture from verbalized reports.

Although most of the traditional weather products, which rolled off the teletype and facsimile machines decades ago, are still available, some are being phased out by the National Weather Service (NWS) in favor of new, Web-based weather information.

It is the objective of AC 00-45H to bring the pilot and operator up to date on new and evolving weather information and capabilities to help plan a safe and efficient flight, while also describing the traditional weather products that remain.

Online aviation weather information is easy to access, and so are references explaining the information. That is why AC 00-45H contains fewer illustrations and less detail for products available online. This AC will give an overview and direct the pilot where to find more weather information and explanatory details. Product examples and explanations are taken primarily from the National Oceanic and Atmospheric Administration (NOAA) NWS Aviation Weather Center's (AWC) website (<https://www.aviationweather.gov>) and other pertinent NWS websites. Due to the fluid nature of Web addresses, this AC minimizes the inclusion of website links. Instead, it provides the name of the website which can be easily found using Internet search tools.



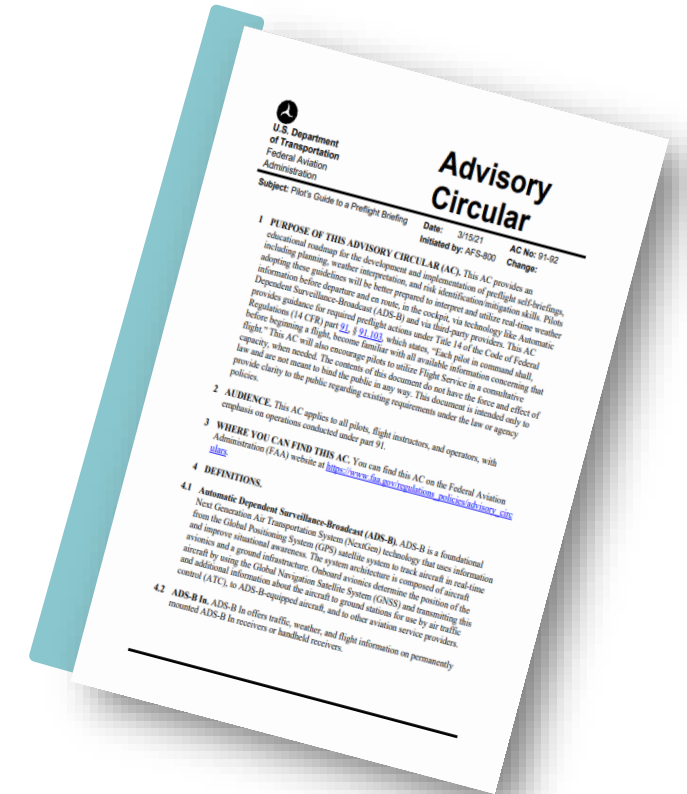
Resources

AC 91-92: Pilot's Guide to a Preflight Briefing

- Extensive ADS-B discussion
- Flight service web services
- Self-briefing information and tips
- Single-pilot resource management

Replaces FAA publications:

- General Aviation Pilot's Guide to Preflight Weather Planning, Weather self-Briefings, and Weather Decision Making
- How to Obtain a Good Weather Briefing



More on AC 91-92

- True or False:
 - To be legal (91.103) official weather briefings can only be obtained from flight service
 - Therefore, a self weather briefing is not legal
- Generally, false:
 - “For many GA pilots, the Flight Service Station (FSS) remains an important source of comprehensive weather and aeronautical information. However, most pilots have become more accustomed to performing a self-briefing than calling an FSS. *The FAA considers that a self-briefing may be compliant with current Federal aviation regulations.* By self-briefing, pilots can often improve their knowledge of weather and aeronautical information. Flight Service personnel are available should a pilot need assistance.”
 - “*Pilots are encouraged to utilize online automated weather resources to conduct self-briefings prior to contacting Flight Service. Pilots who have preflight weather/risk assessment and risk mitigation skills are better prepared to make in-flight decisions as real-time weather information is consumed. This allows Flight Service to become a consultative resource that can be utilized when needed.*”



Weather analysis and decision making are big parts of our job as PIC



Pilot Related Accident Data

Figure 1.11: Major types of accidents

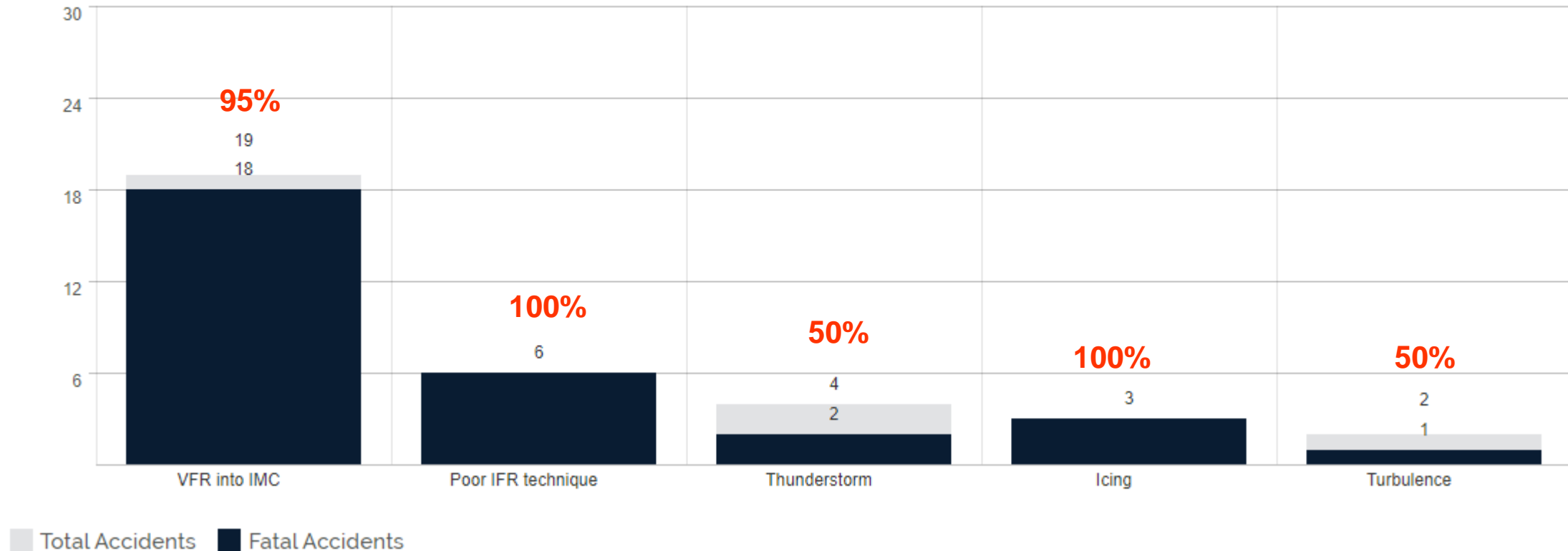
2019 Non-commercial fixed-wing



Weather Related Accidents

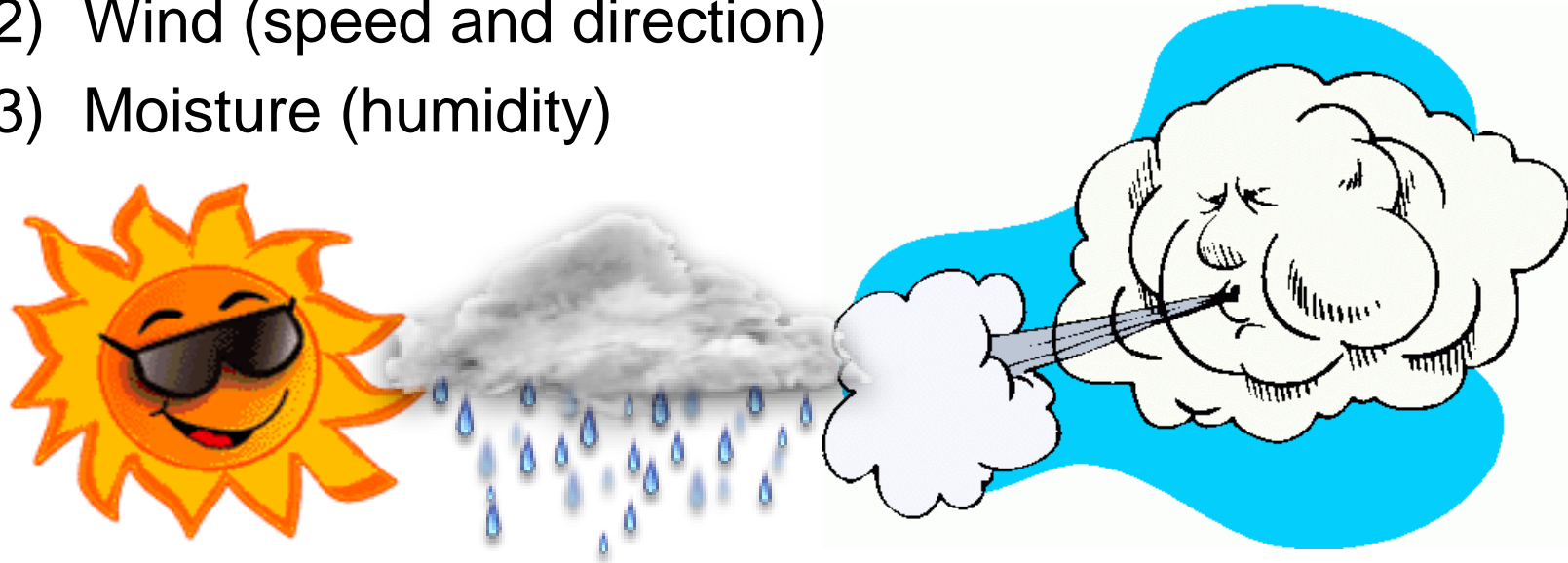
Figure 1.7.2: Types of weather accidents

2019 Non-commercial fixed-wing



Three Basic Elements of Weather are...

- 1) Temperature (warm or cold)
- 2) Wind (speed and direction)
- 3) Moisture (humidity)



Temperature, wind, and moisture combine to varying degrees to create conditions that affect pilots.

Making sense of the data

How will the weather affect this flight?

- **Turbulence**
- **Visibility and terrain**
 - Viz, cloud clearance, separation
 - Flight rules
- **Aircraft performance (Density altitude)**
- **...and it all changes like, well, the weather...**



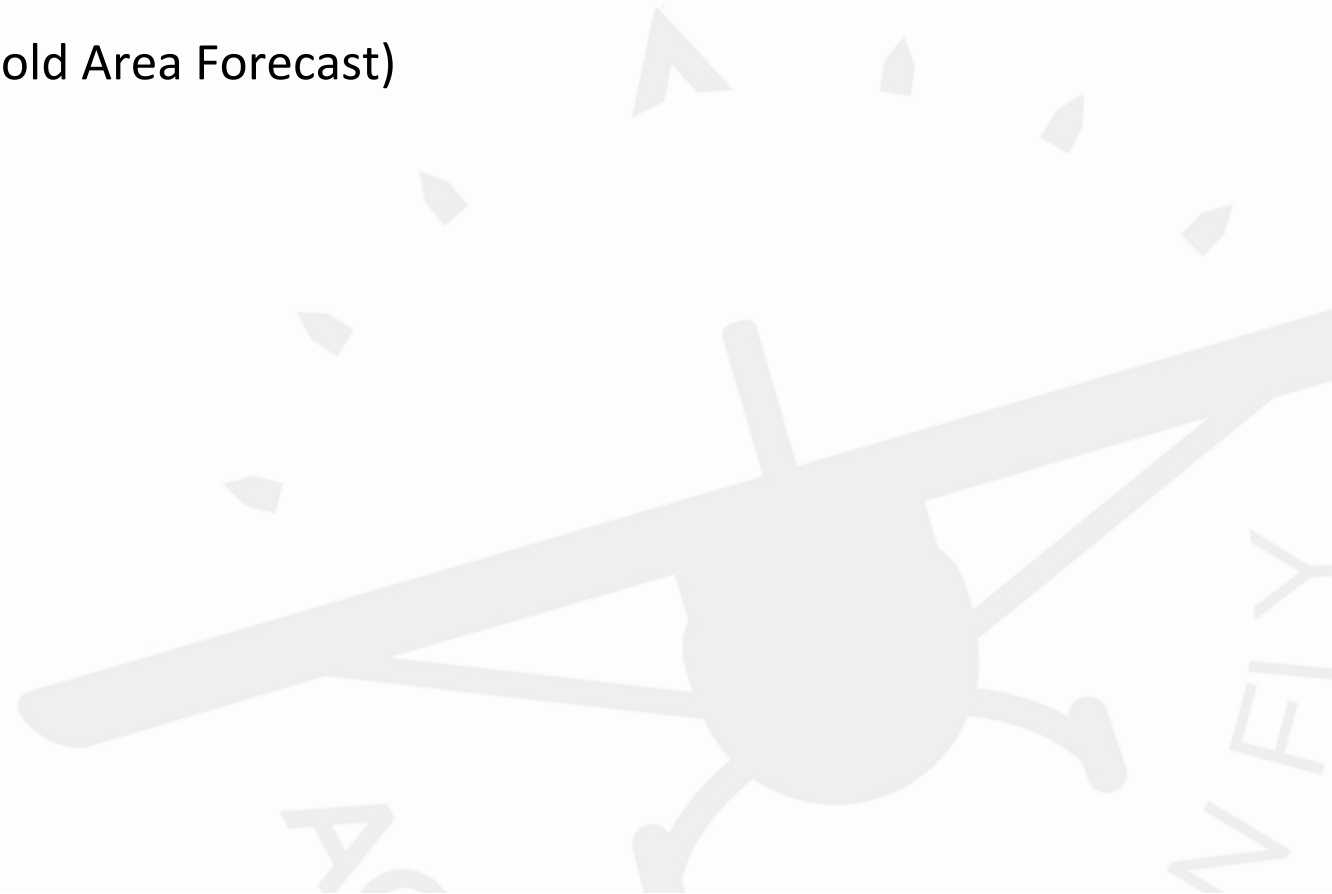
Best Practices When Planning

- **Pre-flight weather review is a regulatory requirement (FAR91.103)**
- **Use more than one weather data source**
- **Plan to be late**
- **Plan alternatives**
- **Train for weather related contingencies**
 - Diversions, etc.
- **Check weather often while en-route...**



Pre-Flight Tools

- Big picture – graphical tools
 - Aviation Digital Data Service – ADDS
 - Graphical Area Forecast (replaces the old Area Forecast)
- Pre-flight briefing:
 - Flight Service - 1800WXBRIEF.com
- Call a briefer
 - 1-800-WXBRIEF
 - Driving off a cliff, not recommended
 - So, VFR not recommended...?
- No-Go/Go? (Baseline is to no-go).



Pre-flight Self-Briefing Resources

Preflight Self-Briefing - Government Resources



1800wxbrief.com	Leidos Flight Service FAA Contract Vendor	Go!	ssd.noaa.gov/VAAC/ vaac.html	Volcanic Ash Advisory Centers (VAAC)	Go!
weathercams.faa.gov	FAA Weather camera network and interactive map display	Go!	sua.faa.gov	Special Use Airspace (SUA)	Go!
aviationweather.gov	NOAA/Government website for aviation weather	Go!	tfr.faa.gov/tfr2/list.html	Temporary Flight Restrictions (TFR)	Go!
Fly.faa.gov/flyfaa/ usmap.jsp	FAA Flight Delay Information	Go!	weather.gov	National Weather Service Forecast Office (NWSFO)	Go!
nhc.noaa.gov	National Hurricane Center (NHC)	Go!	weather.gov/aawu	Alaska Aviation Weather Unit (AAWU)	Go!
notams.aim.faa.gov/ notamSearch	Federal NOTAM System (FNS)	Go!	weather.gov/hfo	National Weather Service Forecast Office Honolulu, HI	Go!
spc.noaa.gov	NOAA Storm Prediction Center (SPC)	Go!	wpc.ncep.noaa.gov	Weather Prediction Center (WPC)	Go!

Note: Additional third-party automated resources may be used to conduct preflight self-briefings



Pre-Flight Know Before You Go

1) Adverse Conditions	<ul style="list-style-type: none">• Weather advisories (SIGMETs, AIRMETs, Convective SIGMETs, Center Weather Advisories, Aviation Watch Notification Messages)• NOTAMs (airport/runway closures, TFRs, etc.)• IFR conditions, low-level windshear, thunderstorms, reported icing, frontal zones
2) Synopsis	<ul style="list-style-type: none">• Weather systems and/or air masses
3) Current Conditions	<ul style="list-style-type: none">• Current observations (e.g., METARs, PIREPs) for departure, en-route, and destination• Satellite and radar imagery
4) Forecast Conditions	<ul style="list-style-type: none">• Forecast information (departure, en-route, and destination)
5) Winds Aloft	<ul style="list-style-type: none">• Winds aloft forecast (interpolate between levels and stations)• Temperature at proposed altitude
6) Notices to Airmen (NOTAM)	<ul style="list-style-type: none">• Departure, en-route, and destination
7) Restricted or Special Use Airspace	<ul style="list-style-type: none">• Prohibited Areas P-40, P-56, and the Special Flight Rules Area (SFRA) for Washington, DC
8) ATC Delays	<ul style="list-style-type: none">• ATC delays and/or flow control advisories



Hangar-Talk Myths Busted #1:

Does the self-briefing need to be recorded or documented by the automation site(s) I use?

- There is no FAA requirement for a self-brief to be recorded
- If you prefer to have your self-briefing preparation recorded, consider using the [Route Brief](#) functionality on 1800wxbrief.com
- Third-party applications may also offer recorded briefing functionality

The screenshot shows the FlightService website interface. At the top right, there is a red 'Close' button. The main header includes the FlightService logo and navigation links: Home, Dashboard, Map, Wx Charts, Plan & Brief, and Airports. Below the header, it says 'Welcome FAA'. The main content area is a flight plan form titled 'Draft'. The form includes fields for Aircraft ID (N1234X), Flight Rule (VFR), Flight Type (G), No. of Aircraft (1), Aircraft Type (BE35), Wake Turbulence (L), and Aircraft Equipment. There are also fields for Departure, Departure Date & Time (10/05/2020), Departure Time (HHMM:EDT), Cruising Speed (N0150), Level (A050), and Surveillance Equipment. The form is divided into sections: Route of Flight, Destination, Fuel Endurance, Persons on Board, Aircraft Color & Markings, Supplemental Remarks, Pilot in Command, Emergency Radios, Survival Equipment, Jackets, Dinghies, and Pilot Contact Information. At the bottom of the form, there are buttons for 'Route Brief', 'File', 'NavLog', 'Return Flight Plan', and 'Clear'. The 'Route Brief' button is circled in red.



Hangar-Talk Myths Busted #2:

If I use graphical tools (GFA, interactive maps) to conduct preflight planning, do I still need to use the “route briefing” functionality on the website or app that provides a full textual briefing?

- Full textual (i.e., route briefing) functionality is not required to be used
- The goal is to conduct a comprehensive preflight self-briefing; if you have done this (i.e., covered all the checklist items) using the graphical tools, you do not need to use full textual briefing functionality
- However, the route briefing functionality is a good idea as a double check that you have not missed something in your own workflow



Hangar-Talk Myths Busted #3:

If I conduct a self-brief and still decide to call Flight Service, will they know what I have done online?

- YES, if you have used 1800wxbrief.com and requested a route briefing
- YES, if you have used a third-party application that links to your 1800wxbrief.com account and uses an approved route briefing product*
- NO, if you have used just the graphical functionality on 1800wxbrief.com or third-party sites
- If you plan to call Flight Service, then using the route briefing functionality from 1800wxbrief.com (or a third-party application that shares your 1800wxbrief.com credentials) will allow the specialist to see your briefing details. This may also shorten the wait time (check 1800wxbrief.com for information on priority service)
- Pilots' self-briefing history is not available to Flight Service Specialists in Alaska

** Check with your third-party vendor if you are unsure*



So, why not just do it?



Welcome STEPHEN C BATEMAN

Mon Aug 08 15:16:51 EDT | 19:16:51 Z

Draft
ICAO Domestic

Recent Flight Plans
Favorite Flight Plans
Save as Favorite

* Click field names for help

Aircraft ID N761GG	Flight Rule VFR	Flight Type G	No. of Aircraft 1	Aircraft Type C152	Wake Turbulence L	Aircraft Equipment SBDGR
Departure KFDK		Departure Date & Time 08/08/2022 1700 EDT		Cruising Speed N0085	Level A035	Surveillance Equipment EB2U2
Route of Flight DCT			Other Information (Optional) PBN/A1B2C2D2S1 CODE/AA45DC			
Destination KLNS		Est Elapsed Time HHMM	Alternate 1 (Optional)		Alternate 2 (Optional)	
Fuel Endurance 0400	Persons on Board 2	Aircraft Color & Markings (Optional) W:R		Supplemental Remarks (Optional)		Pilot In Command (Optional)
Emergency Radios <input type="checkbox"/> UHF <input checked="" type="checkbox"/> VHF <input type="checkbox"/> ELBA	Survival Equipment <input type="checkbox"/> Polar <input type="checkbox"/> Desert <input type="checkbox"/> Maritime <input type="checkbox"/> Jungle	Jackets <input type="checkbox"/> Light <input type="checkbox"/> Fluorescent <input type="checkbox"/> UHF <input type="checkbox"/> VHF	Dinghies (Optional)		Pilot Contact Information BATEMAN, STEPHEN, (402)200-8930	

Route Brief
File
NavLog
Return Flight Plan
Next Leg
Clear



Welcome STEPHEN C BATEMAN

Mon Aug 08 15:13:03 EDT | 19:13:03 Z

Draft
ICAO Domestic

Recent Flight Plans
Favorite Flight Plans
Save as Favorite

* Click field names for help

Aircraft ID N761GG	Flight Rule VFR	Flight Type G	No. of Aircraft 1	Aircraft Type C152	Wake Turbulence L	Aircraft Equipment SBDGR
Departure KFDK		Departure Date & Time 08/08/2022 1700 EDT		Cruising Speed N0085	Level A035	Surveillance Equipment EB2U2
Route of Flight DCT			Other Information (Optional) PBN/A1B2C2D2S1 CODE/AA45DC			
Destination KLNS		Est Elapsed Time HHMM	Alternate 1 (Optional)		Alternate 2 (Optional)	
Fuel Endurance 0400	Persons on Board 2	Aircraft Color & Markings (Optional) W:R		Supplemental Remarks (Optional)		Pilot In Command (Optional)
Emergency Radios <input type="checkbox"/> UHF <input checked="" type="checkbox"/> VHF <input type="checkbox"/> ELBA	Survival Equipment <input type="checkbox"/> Polar <input type="checkbox"/> Desert <input type="checkbox"/> Maritime <input type="checkbox"/> Jungle	Jackets <input type="checkbox"/> Light <input type="checkbox"/> Fluorescent <input type="checkbox"/> UHF <input type="checkbox"/> VHF	Dinghies (Optional)		Pilot Contact Information BATEMAN, STEPHEN, (402)200-8930	

Route Brief
File
NavLog
Return Flight Plan
Next Leg
Clear

Briefing Customization
ICAO Domestic

Recent Flight Plans
Favorite Flight Plans
Save as Favorite

* Click field names for help

Aircraft ID N761GG	Flight Rule VFR	Flight Type G	No. of Aircraft 1	Aircraft Type C152	Wake Turbulence L	Aircraft Equipment SBDGR
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Fuel Endurance 0400	Persons on Board 2	Aircraft Color & Markings (Optional) W:R		Supplemental Remarks (Optional)		Pilot In Command (Optional)
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Route Brief
File
NavLog
Return Flight Plan
Next Leg
Clear

Briefing Type:
Standard
Abbreviated
Outlook

Route Settings:

Briefing Corridor: 50 nm

Winds Aloft Corridor: 200 nm

Briefing Output Settings:

Include Graphics Include NextGen Content

Plain Text Translations

Briefing Content Filters:

Include Evaluate Departure Time Details [What's this?](#)

For briefings > FL180 only include Dep & Dest METARs & TAFs

Only include most recent METARs

Only include Graphical Forecast Products for departure time

Only include Winds Aloft for altitudes within 4000ft of filed altitude

Only include En Route Obstruction NOTAMs above the filed altitude minus 1000ft

Include En Route NAV NOTAMs:

DME NDB VOR VOR-DME

ILS TACAN VORTAC Other

Include FDC NOTAMs: [What's this?](#)

AIRSPACE DATA IAP ROUTE SID STAR

CHART DVA ODP SECURITY SPECIAL VFP

Include Optional Briefing Products:

Flow Control Messages NHC Bulletins State Department NOTAMs

Military NOTAMs Non-Location FDC NOTAMs

Web Briefing
PDF Briefing
Email Briefing
Cancel



Also, using Foreflight “Flights”

KOSH to O69
Mon Aug 8, 9:25 PM CDT

Send To Map Share Delete Show Map

DIST 1,603 nm ETE 15h01m ETA (PDT) 10:25 am FLIGHT FUEL 185 g WIND 3 kts head

Calculated a minute ago Refresh

Navlog Briefing 0 New Msg

OVERVIEW

Date	Time (CDT)	Departure	Destination	Alternate	Aircraft
08/08/2022	9:25 PM	KOSH	O69	Optional	N716ER (AA5)

Performance Profile
Steve1 (Default)

ROUTE

Route
KCHU KOTG KICR KDGW KLGU KBMC 40.741/-112.696 KENV KEKO KBAM KLOL KTRK KAUN

Altitude 6,500 Flight Rules VFR

DESTINATION SERVICES

FBO
Petaluma Municipal Airport

122.7 UNICOM / \$7.40/gal

FLIGHT LOG

Fuel at Shutdown (g) 0 Times Optional

Add Next Flight Copy Delete



Steve's Favs...

- Foreflight web

The screenshot shows the ForeFlight web interface. On the left is a dark sidebar with the ForeFlight logo and a list of navigation items: Flights, Maps, Imagery (highlighted), Documents, Aircraft, Logbook, Directory, Track Logs, Trip Assistant, and JetFuelX. Below these is a user profile for 'Stephen'. To the right of the sidebar is a 'REGIONS' menu with a dropdown for 'USA'. Under 'USA', the following options are listed: National, Featured, CONUS Weather, Prog Charts, 6 HR Qty of Precipitation, 12 HR Prob of Precipitation, Outlook (SIGWX), Convective Outlooks, Convective Fcst, Extended Convective Fcst, Graphical Aviation Forecasts, CONUS Cloud, CONUS Surface, Northeast Cloud, Northeast Surface, East Cloud, and East Surface.

This screenshot displays the weather radar and flight planning interface in ForeFlight. The top left shows the time as 4:05 PM EDT. The 'CHARTS & LAYERS' panel on the left lists various map and layer options, with 'Radar (Composite)' selected. The main map area shows a flight route from KOSH to O69, passing through KICR, KOTG, KRST, and KDGW. The map is overlaid with weather data, including radar returns and various forecast layers. A flight information panel on the right shows the route 'KOSH to O69' with a fuel burn of 177g and an ETE of 14h08m. The bottom right corner of the map area shows 'Radar not available' in several locations.



Steve's Favs...

- ADDS

The **Aviation Digital Data Service (ADDS)** makes available to the aviation community text, digital and graphical forecasts, analyses, and observations of aviation-related weather variables. ADDS was developed as a joint effort of NCAR Research Applications Program (**RAP**), Global Systems Division (**GSD**) of NOAA's Earth System Research Laboratory (**ESRL**), and the National Centers for Environmental Prediction (**NCEP**) Aviation Weather Center (**AWC**).

ADDS is currently maintained by AWC, and was initially funded through the FAA Aviation Weather Research Program (**AWRP**).

Tools:

- Turbulence
- Icing
- Wind/Temp
- METARs
- TAFs
- SIGMETs
- Radar
- Convection
- Prog Charts
- Ceil&Vis
- PIREPs
- Satellite

Additional Tools (from dropdown menu):

- Flight Path Tool
- GFA Tool
- HEMS Tool
- Text Data Server
- Flight Folder
- Decision Support
- PIREP Submit
- Standard Briefing
- Aviation Testbed
- Aviation Links

Footer:

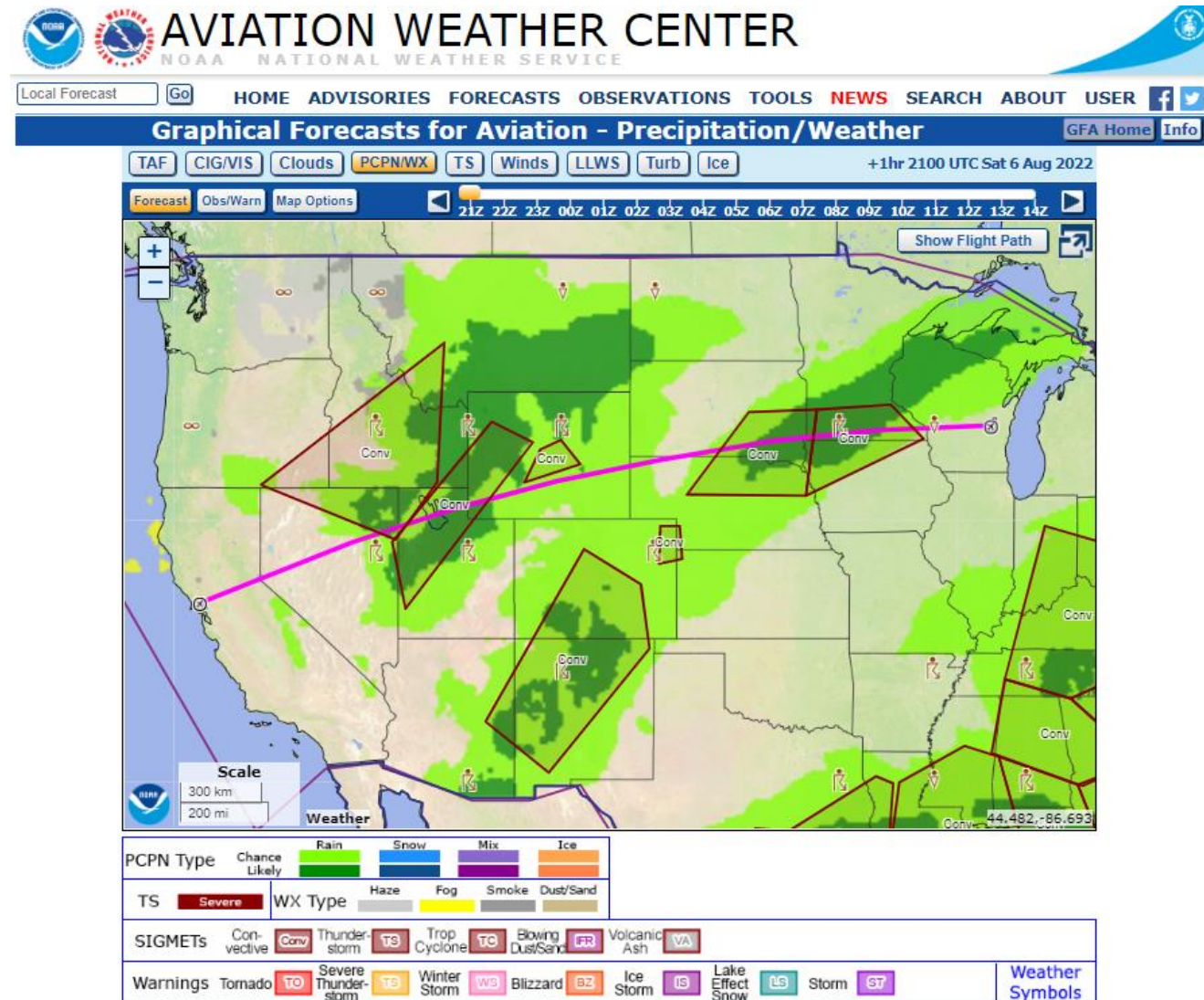
Page loaded: 20:15 UTC | 01:15 PM Pacific | 02:15 PM Mountain | 03:15 PM Central | 04:15 PM Eastern

- ADVISORIES**
 - SIGMET
 - G-AIRMET
 - Center Weather
- FORECASTS**
 - Convection
 - Turbulence
- FORECASTS**
 - Icing
 - Winds/Temps
 - Prog Charts
 - TAFs
 - Aviation Forecasts
 - WAFS Forecasts
 - Area Forecasts
 - Avn Forecast Disc (AFD)
- OBSERVATIONS**
 - Aircraft Reps
 - METARs
 - Radar
 - Satellite
- USER TOOLS**
 - Flightpath Tool
 - HEMS Tool
 - Text Data Server
 - Flight Folder
 - Decision Support
 - PIREP Submit
 - Standard Briefing
 - Aviation Testbed
 - Aviation Links
- ABOUT US**
 - AWC
 - Help
 - FAQ
 - Contact Us



Steve's Favs...

- Graphical Aviation Forecast tool



Steve's Favs...

- TAF
- MOS
- Discussion

The screenshot shows a mobile weather application interface. At the top, it displays 'KTVY Bolinder Field-Tooele Valley'. Below this is a button labeled 'Add to Route'. There are three tabs: 'Nearest TAF' (selected), 'MOS', and 'Discussion'. The main content area shows the 'KSLC TAF' forecast, which is 20 nm NE of KTVY and was updated 2h 57m ago. The forecast text is as follows:

```
061724Z 0618/0724 32011KT P6SM VCSH SCT030
BKN060 OVC080
FM061900 34012G21KT P6SM -SHRA VCTS
BKN040CB OVC080
FM062300 34010KT P6SM VCSH SCT040 OVC070
FM070300 15007KT P6SM FEW050 SCT070
BKN100
FM071700 34006KT P6SM FEW120
```

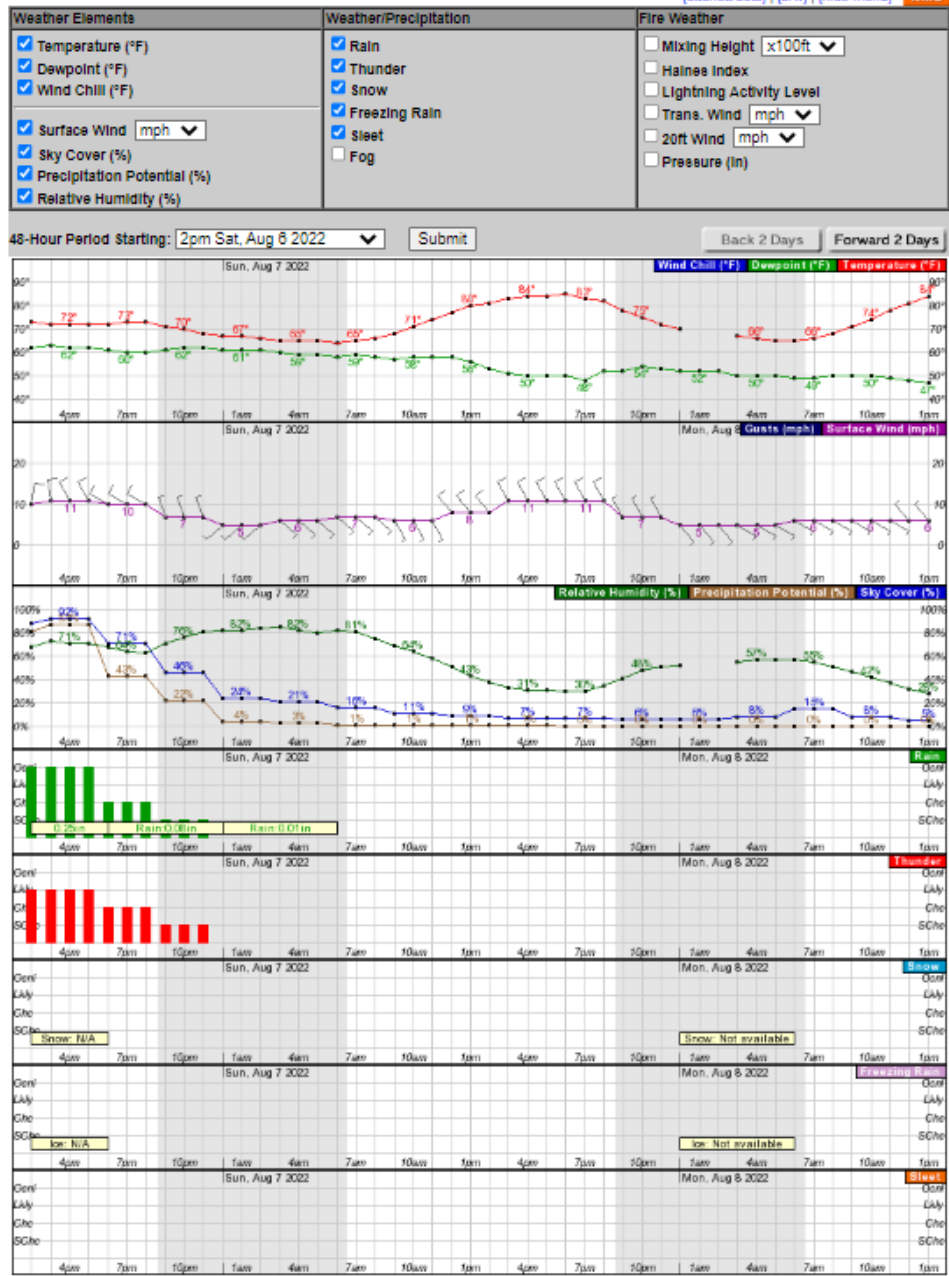
Below the TAF text, it indicates 'TODAY AT 2:00 PM EDT' and shows a green dot for 'VFR' conditions. Other weather details include:

- Wind: 320° at 11 kts
- Visibility: 6+ sm
- Clouds (AGL): Scattered 3,000', Broken 6,000', Overcast 8,000'
- Weather: Showers In Vicinity
- Expires: Today at 3:00 PM EDT



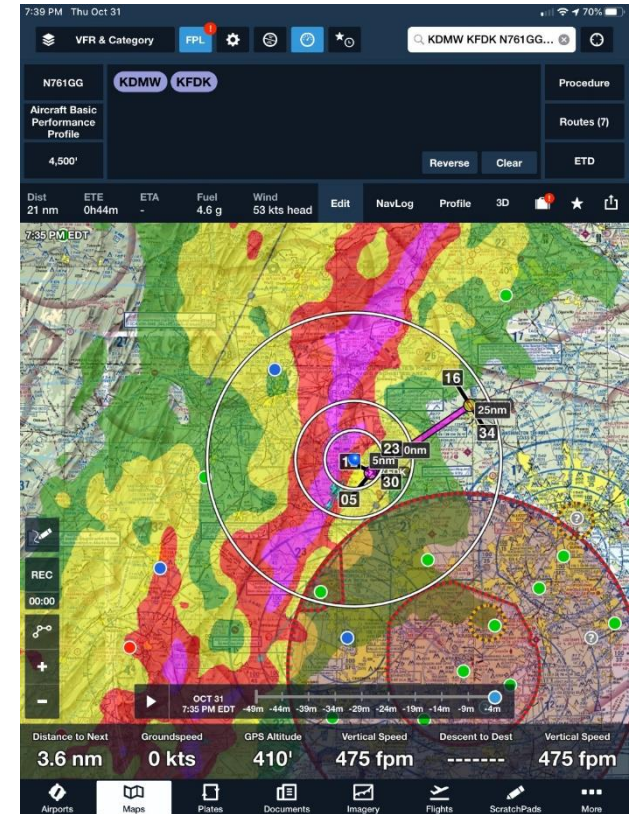
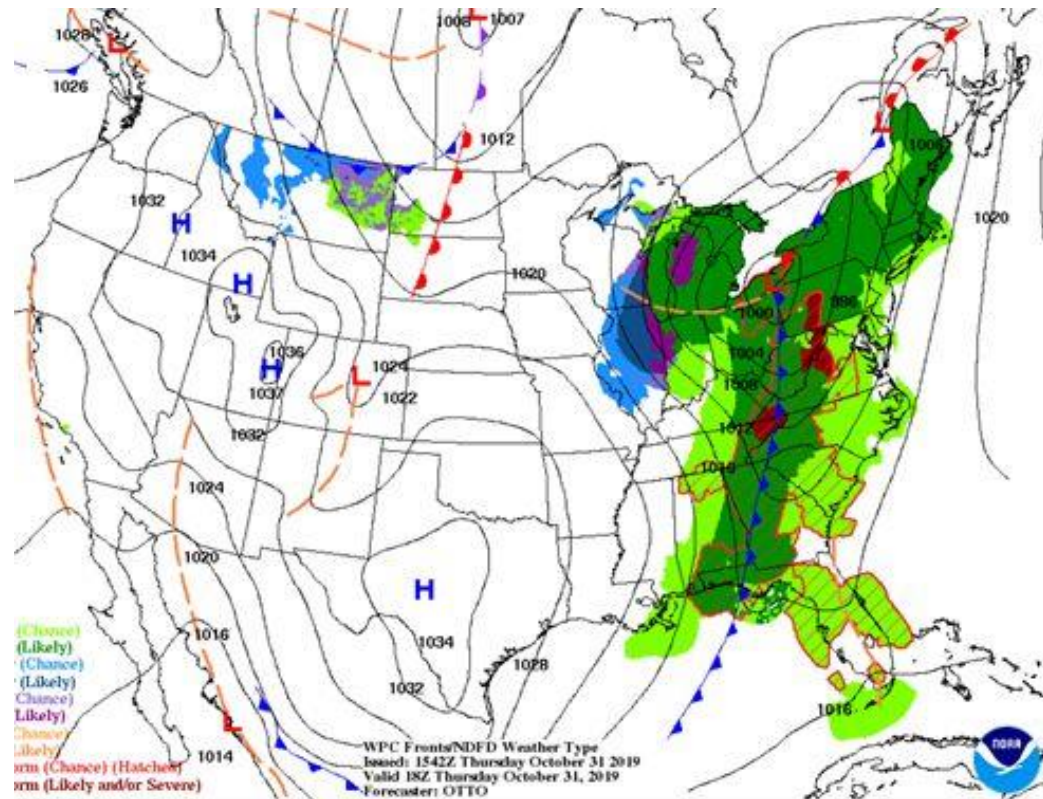
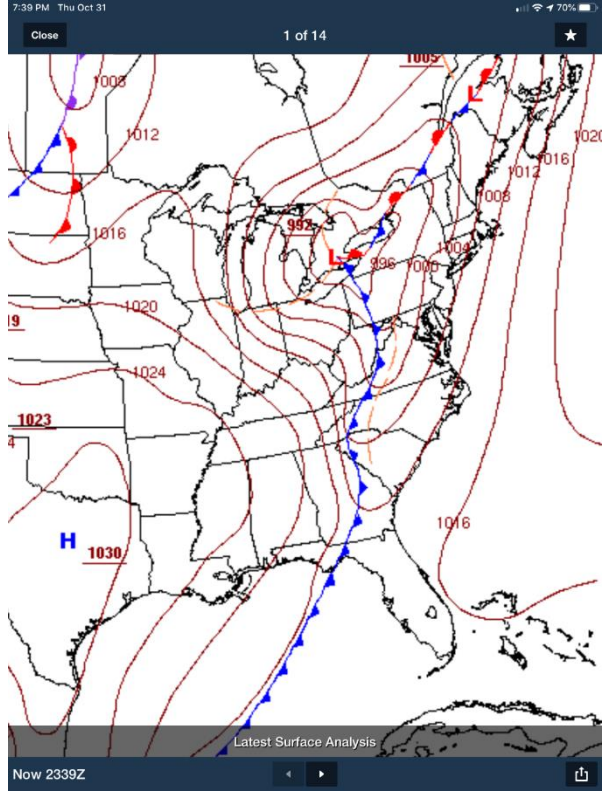
Steve's Favs...

- Local by hour forecasts from ADDS
- I love meteograms!



Different Views...Give more Info...

Fast Moving Cold Front...October 2019



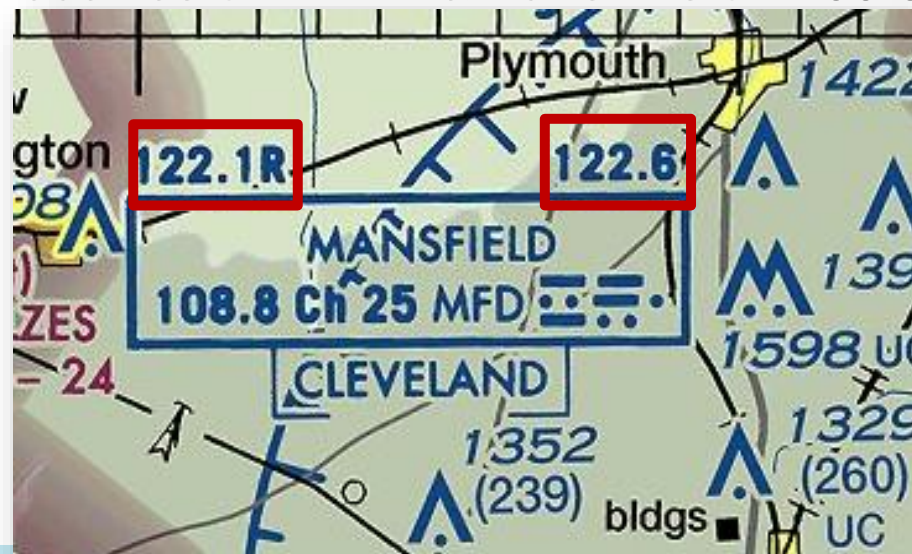
Still Want to Go?

In-Flight Tools



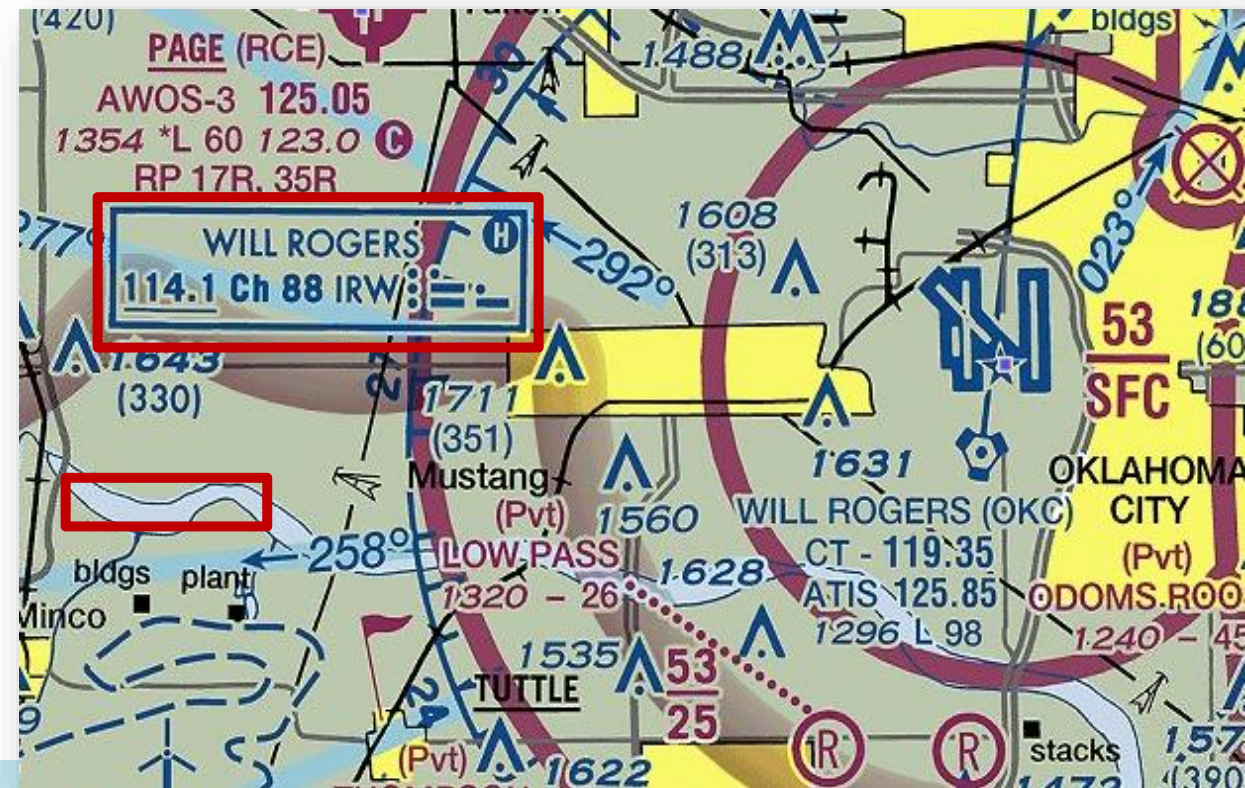
In-Flight Weather Sources

- Ask Flight Service (FSS) for en-route weather
- Always give a PIREP in return
- Frequencies depicted on VOR data block and in C-Supp
 - Everywhere... 122.2
 - FSS transmits & receives on 122.2 (VHF) and 255.4 (UHF)
 - FSS transmits and receives on 122.6 or receives on 122.1 & transmits on 108.8 (VOR)



In-flight Weather Sources

- ~~Hazardous in-flight Weather Advisory Service (HIWAS)~~
- **Automated Terminal Information Service (ATIS)**
 - Could be an hour old
 - “Wind check, please”



In-flight Weather Sources

- Automated Surface Observing System (ASOS)
- Automated Weather Observing System (AWOS)
- “One-minute weather”



ASOS Information

METAR Element	Information Provided
Wind direction, speed, & character	Tens of degrees – Knots, Gusts
Visibility	Up to & including 10 statute miles
Runway Visual Range (RVR)	At selected sites
Basic present weather	Type and intensity
Obstructions to vision	Fog, mist, haze, & freezing fog
Sky conditions	Cloud height and amount to 12,000 Ft. AGL CLR, FEW, SCT, BKN, OVC
Ambient & dew point temperatures	Degrees Celsius
Pressure	Altimeter setting In. Hg.
Remarks	Automated, manual, & plain language – depending on service level



AWOS Information

AWOS Type	Information Provided
AWOS-A	Altimeter Setting
AWOS-AV	Altimeter Setting & Visibility
AWOS-1	Altimeter Setting, Wind speed & direction, Temperature, Dew Point, & Density Altitude
AWOS-2	AWOS-1 plus Visibility
AWOS-3	AWOS-2 plus Cloud & Ceiling Data
AWOS-3P	AWOS-3 plus Precipitation Discriminator
AWOS-3PT	AWOS-3P plus Thunderstorm/Lightning
AWOS-3T	AWOS-3 plus Thunderstorm/Lightning
AWOS-4	AWOS-3 plus precipitation type and accumulation, freezing, thunderstorm, & runway surface information



In-flight Weather Service Products – Radio or Datalink

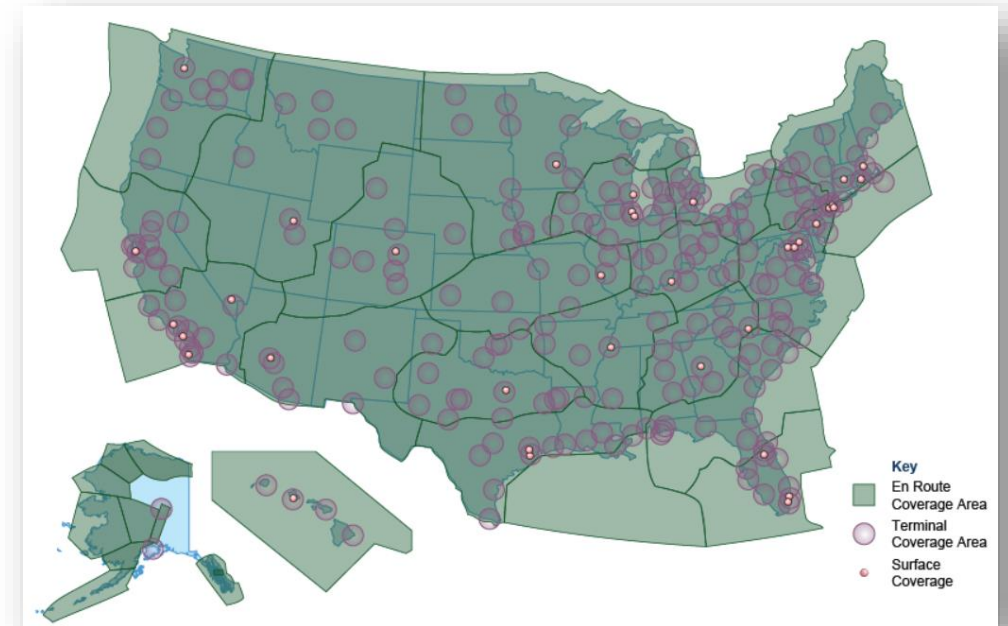
Near Real Time or older	Forecasts old news
METARs – Surface Observations	Graphical Forecasts for Aviation (GFA)
SPECIs – Special METAR Reports	Terminal Aerodrome Forecasts - TAFs
SIGMETs (WSs) – Non-convective weather hazards to all aircraft	Winds & Temperatures Aloft
Convective SIGMETs (WSTs) – Convective weather hazards to all aircraft	
AIRMETS (WAs) – Weather hazards to light aircraft	
PIREPs - Pilot reports of flight conditions	
NOTAMs – Notices to Airmen	

Compare forecasts to real time observations to get the best weather picture.



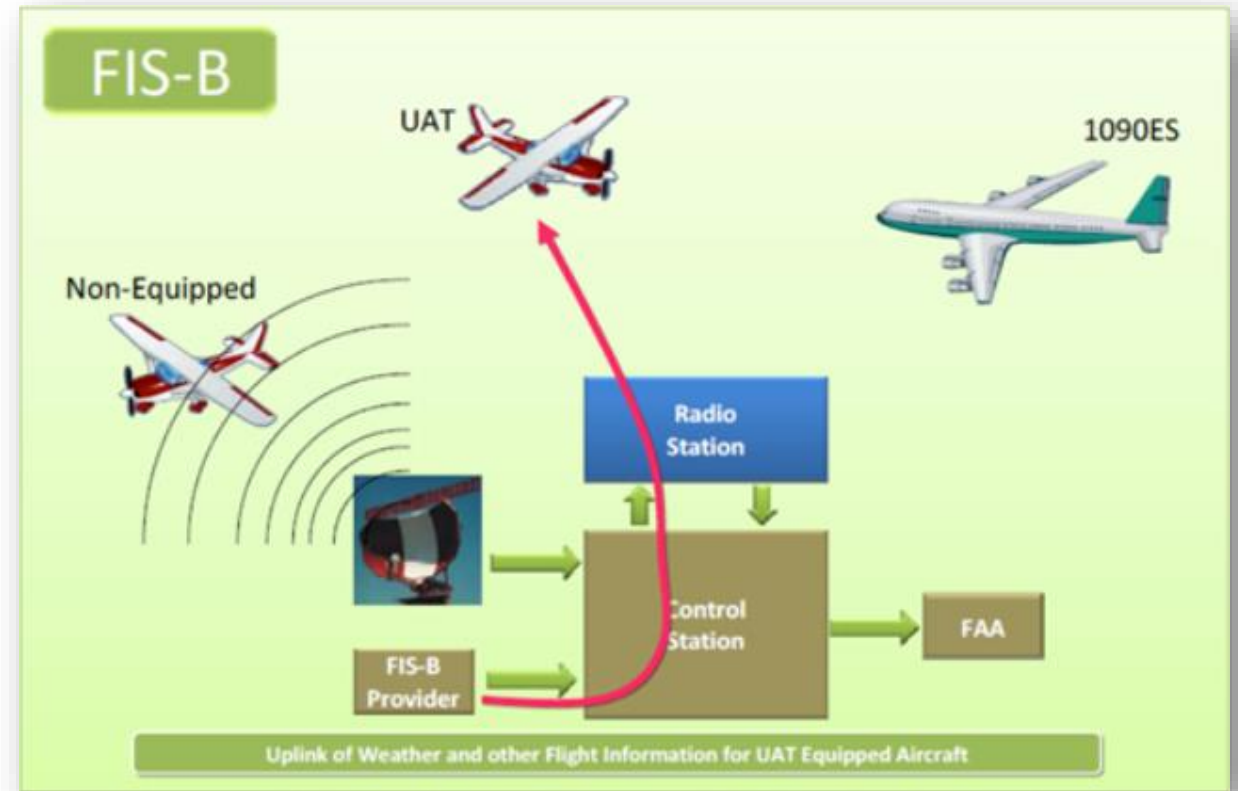
ADS-B – IN Applications

- **Traffic Information Services - Broadcast (TIS-B) (1090 and UAT)**
- **Flight Information Services - Broadcast (FIS-B) (UAT only)**
 - UAT is broadcast on 978 MHz
- **When equipping, get dual-band IN**
- **At least on a hand-held (e.g., Stratus)**



FIS-B

- Available to ADS-B UAT equipped aircraft/handhelds
- System broadcasts aeronautical information products from the FAA and weather products from the National Weather Service



FIS-B Products (Can be ~15-mins old)

AIRMETs

Convective SIGMETs

SIGMETs

METARS

SPECIs

National NEXRAD*

Regional NEXRAD*

D-NOTAMs

FDC-NOTAMs

Special Use Airspace (SUA) Status

PIREPS

TAFs

Amended TAFs

Winds & Temperatures Aloft

Lightning

Turbulence

Icing

Cloud Tops

Graphical AIRMETs

Center Weather Advisories

TIS-B Service Status

**Note: All radar tools pull data from NOAA NexRad and crunch/display it differently*

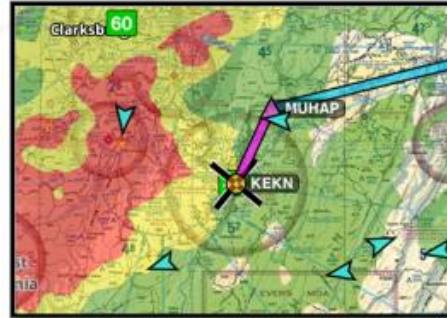


NexRad Can be ~15-mins old)

NEXRAD

NEXRAD is a great addition to preflight planning and inflight weather awareness. There are several aspects to NEXRAD that can get you in trouble if you do not understand their behavior.

- The NEXRAD image is delayed, so the picture you are seeing is a historical view of where the weather was 2-8 minutes ago *
- For fast moving and developing storms this delay can mean that your weather avoidance plan might result in you flying into the weather you are trying to avoid
- When navigating on the front side of a cell, account for the delay and assume the cell is 5 miles further ahead of its NEXRAD depiction
- For red and magenta cells, stay 10 and 20 miles away from the edge of the green NEXRAD image
- Different online and in cockpit resources can depict the intensity of weather with a different number of colors. This means on one, the view of a cell is shown in red (which we know to avoid) and on another the same cell might be a lighter yellow **



Which radar picture would you want to see if trying to land at KEKN?

[Click for Answer](#)



* Plus the time to send via data link

** Know the tool you use and its color scheme

• NexRad show precipitation, NOT clouds

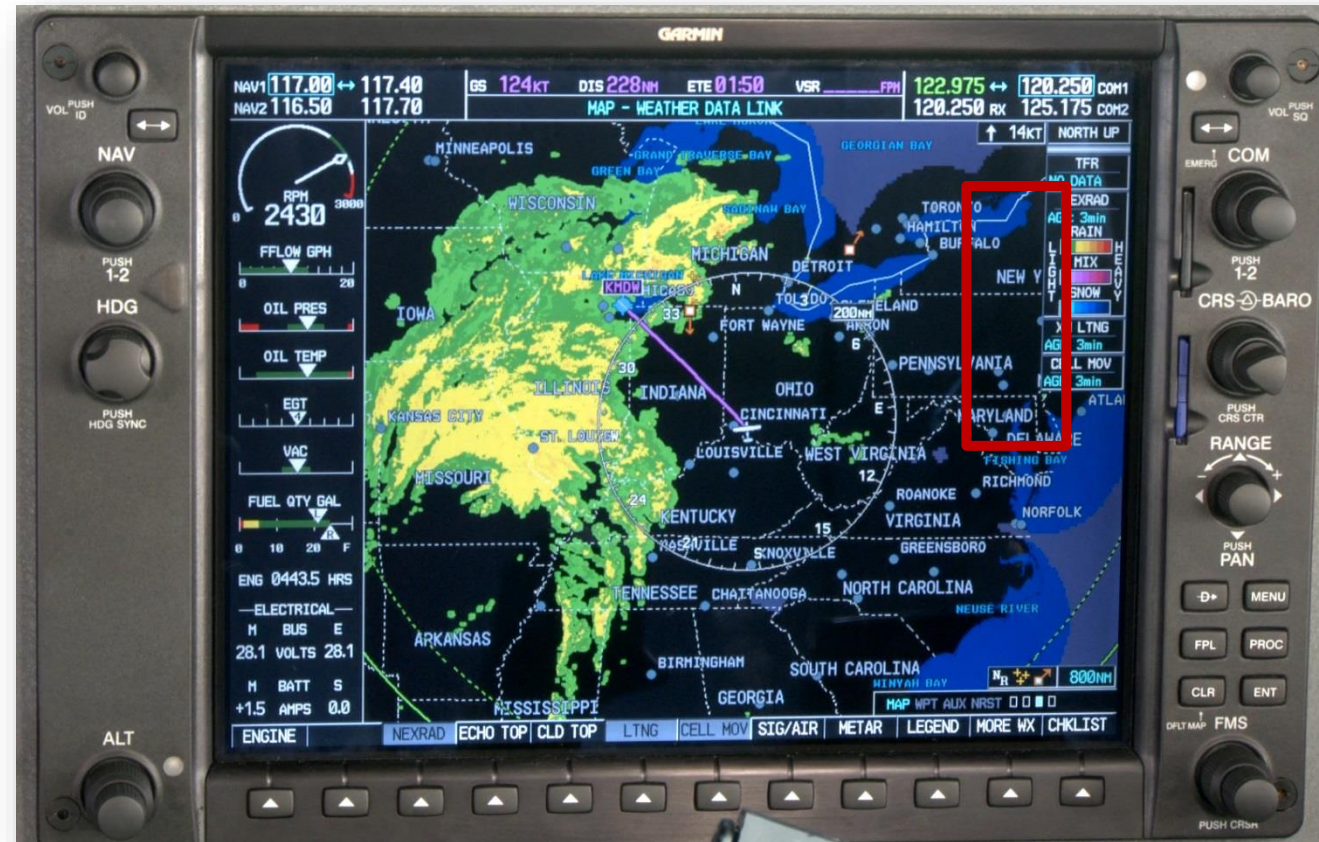
**Note: All radar tools pull data from NOAA NexRad and crunch/display it differently*

Portable ADS-B Receivers



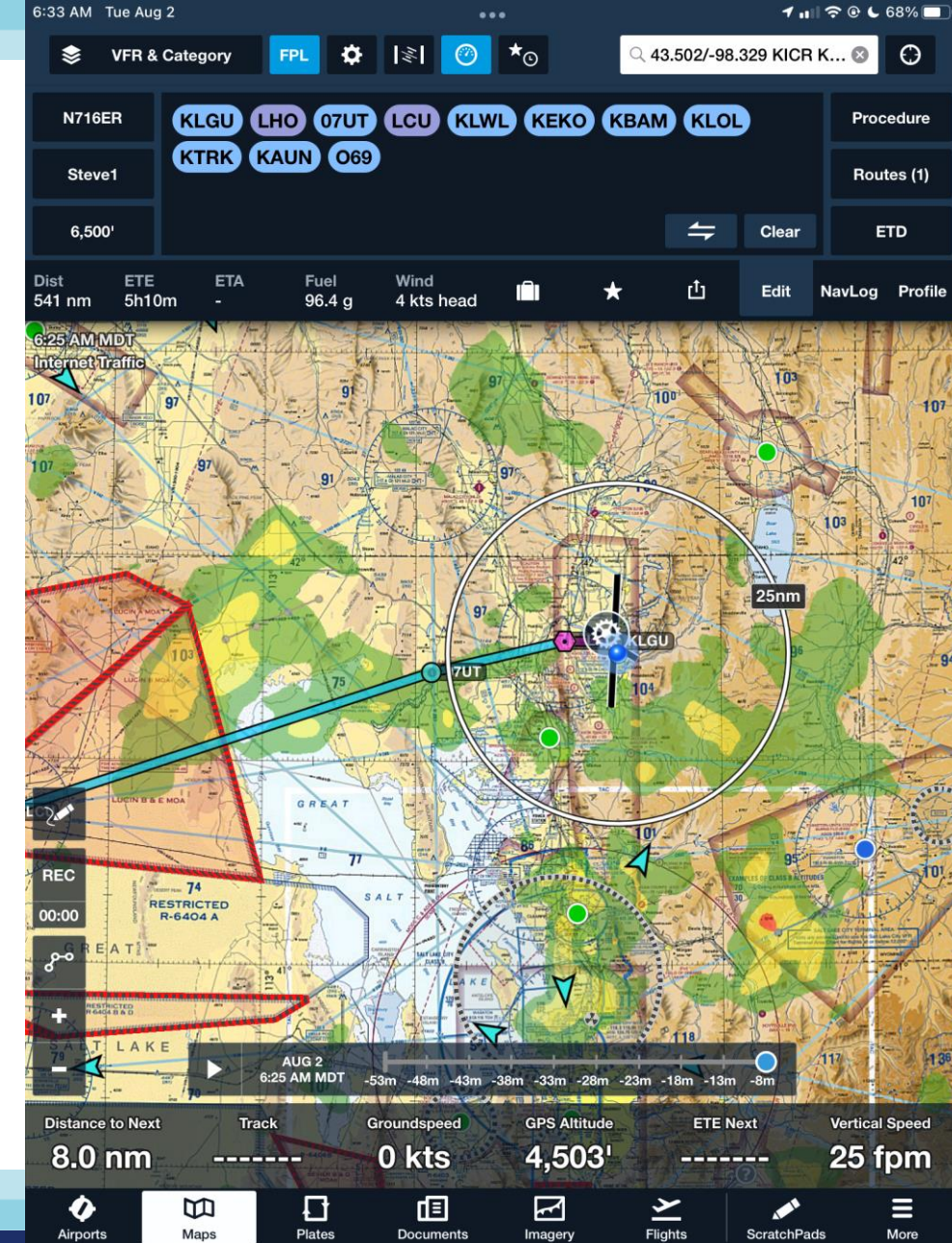
XM Weather

- **Subscription service**
- **Near real time**
 - 2.5 Minute update
 - Look for time stamp
- **Good for strategic planning**



Using It For Real

- Long, hot, bumpy leg the day before
- Logan UT, 0700 local
- Temp/DP = 17/17
- Mist in the valley
- Layer overhead
- Restricted areas to the west



Using It For Real

- Original route



- Weather modified route



EFB

- 1. Charged and/or plugged-in**
- 2. Connected to a source of FIS-B and TIS-B**
- 3. You understand the limitations**
- 4. You understand the limitations**
- 5. Position it so it doesn't overheat!**

Let's look at an iPad running Foreflight...



- Get to know Foreflight or Garmin Pilot
- Astoria to Pendleton, OR
- This looks okay...

11:54 AM Fri Nov 6 60%

U.S. VFR sectional FPL

FROM TO HDG TOTALS LEG REMAINING ETA

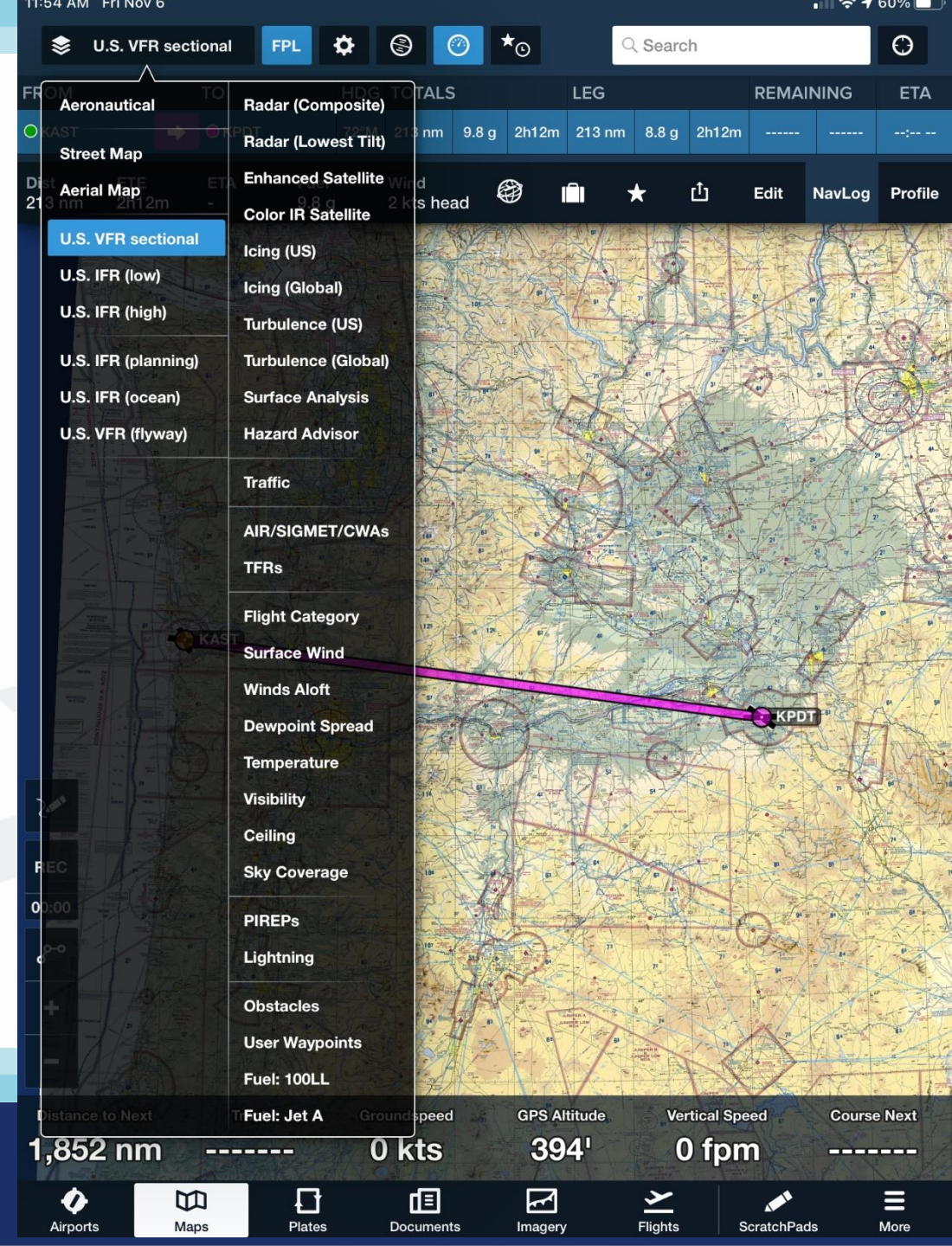
KAST KPDT 72°M 213 nm 9.8 g 2h12m 213 nm 8.8 g 2h12m -----

Dist 213 nm ETE 2h12m ETA - Fuel 9.8 g Wind 2 kts head

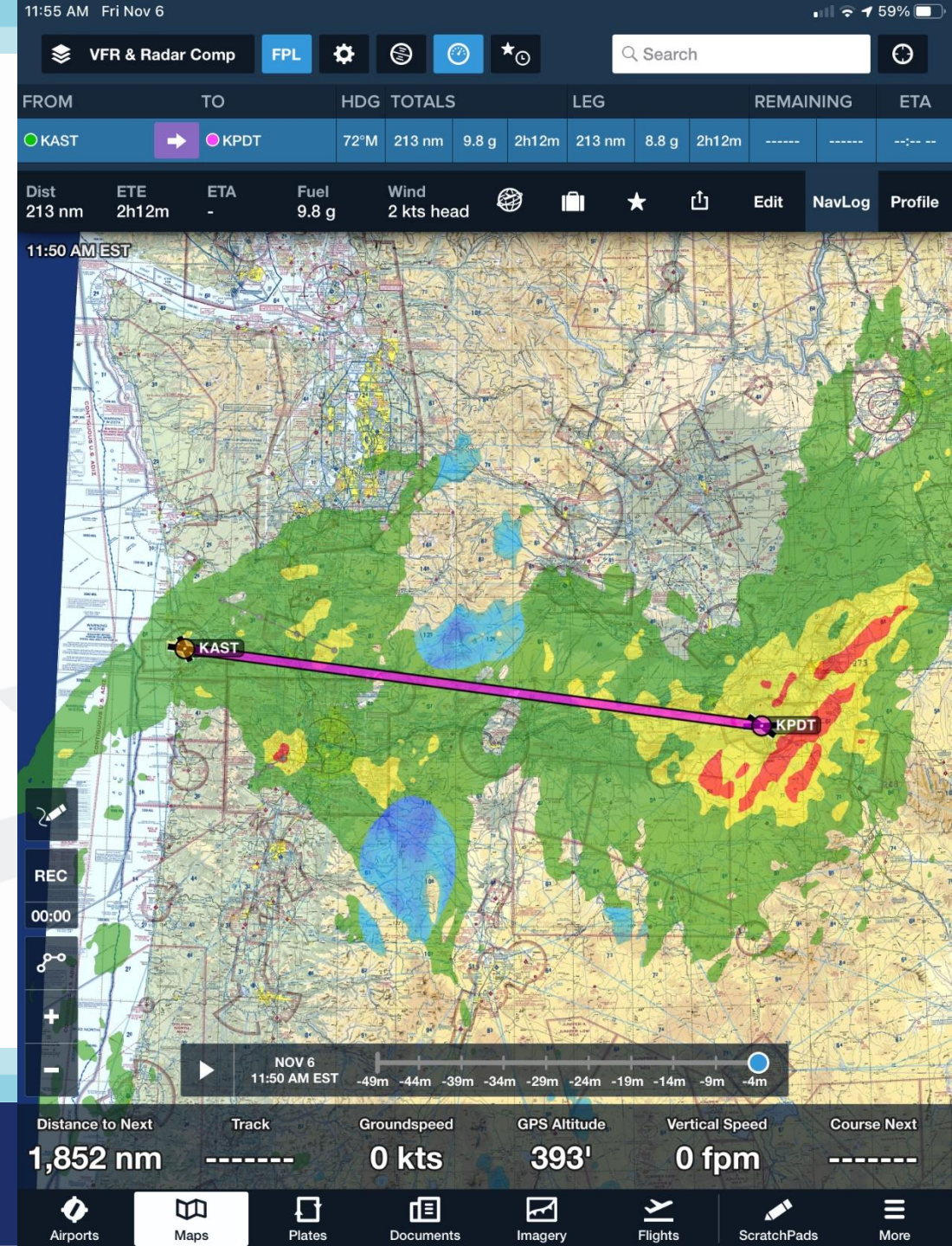
Distance to Next 1,852 nm Track ----- Groundspeed 0 kts GPS Altitude 394' Vertical Speed 0 fpm Course Next -----

Airports Maps Plates Documents Imagery Flights ScratchPads More

- Oh...wait...better turn on RADAR layer



- Umm...might be okay by the time we get there...



MAPS

- Aeronautical
- Street Map
- Aerial Map
- U.S. VFR
- U.S. IFR (low)
- U.S. IFR (high)
- U.S. IFR (planning)
- U.S. IFR (ocean)
- U.S. VFR (flyway)
- Carib/Mexico (low)
- Carib/Mexico (high)
- U.S. Helicopter
- Heli Gulf VFR
- Heli Gulf IFR

LAYERS

- Radar (Composite)
- Radar (Lowest Tilt)
- Enhanced Satellite
- Color IR Satellite
- Icing (US)
- Icing (Global)
- Turbulence (US)
- Turbulence (Global)
- Clouds
- Surface Analysis
- Traffic
- AIR/SIGMETs/CWAs
- NOTAMS
- TFRs
- Flight Category
- Surface Winds
- Winds Aloft
- Dewpoint Spread
- Temperature
- Visibility
- Ceiling
- Sky Coverage
- Lightning
- Fuel: 100LL
- Fuel: Jet A

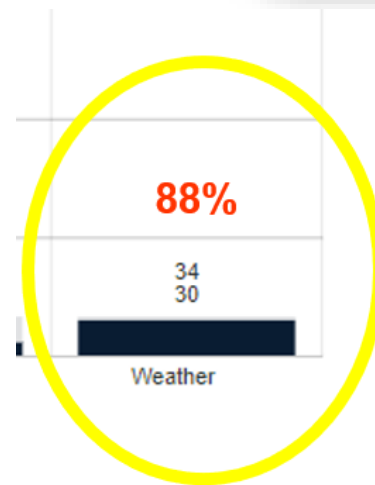
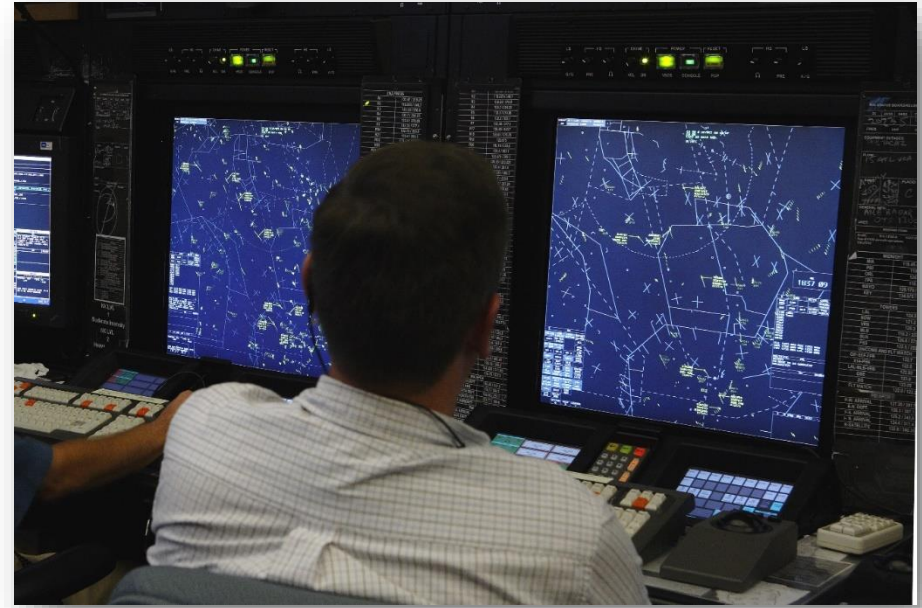
- **Get to know ALL the layers:**



Air Traffic Control

- Limited ability and time to forward weather information
- You can learn a lot by just listening
- Don't wait until the last minute to make diversion requests

- Psst!...use the “e-word” if you get into weather trouble...remember...



Cautions & Tips

- **Don't fixate on the equipment**
 - Cockpit displays don't tell the whole story
 - We still have to look outside
- **Understand what the displays tell you... and what they don't**
 - You may not see all the traffic in your area
 - ...or all the weather ahead
- **Make weather avoidance decisions early**
 - Don't wait till you're too close to choose a route
 - Refine your decisions as more information becomes available
 - Obey the 20-mile rule



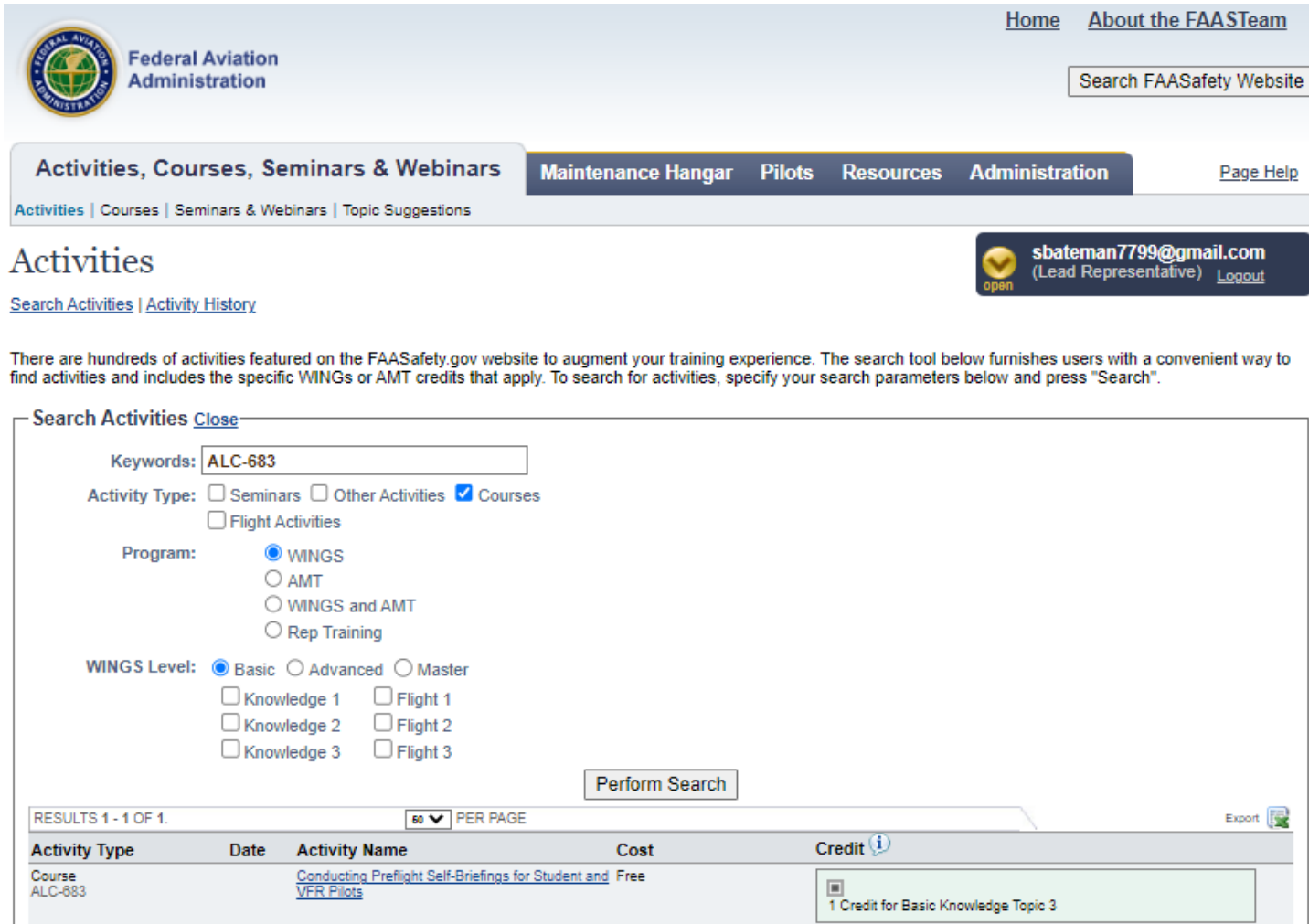
Want to know more?

WINGS course ALC-683 – I challenge you to take this tonight!

The screenshot shows a video player interface with a blue header. The main content area features a video thumbnail of a white aircraft cockpit with two pilots. The title 'How to Conduct Preflight Self-Briefings for Student & VFR Pilots' is overlaid on the video. Below the video is a white bar with the Federal Aviation Administration logo and name. The left sidebar contains a 'Menu' with a 'Glossary' link and a list of course topics including 'Home', 'Introduction', 'Know Before You Go', 'Preflight Self-Briefing', and 'Phases of Flight'. At the bottom of the player are controls for search, play/pause, volume, and navigation buttons labeled 'PREV' and 'NEXT'.



Finding it...



The screenshot shows the FAA Safety website interface. At the top left is the FAA logo and the text "Federal Aviation Administration". To the right are links for "Home" and "About the FAASafety Team", and a search box labeled "Search FAASafety Website". Below this is a navigation bar with "Activities, Courses, Seminars & Webinars" highlighted, and other tabs for "Maintenance Hangar", "Pilots", "Resources", and "Administration". A user profile for "sbateman7799@gmail.com" is visible in the top right. The main content area is titled "Activities" and includes a search tool. The search parameters are: Keywords: ALC-683; Activity Type: Courses (checked); Program: WINGS (checked); WINGS Level: Basic (checked). The search results table shows one result for "Course ALC-683" with the title "Conducting Preflight Self-Briefings for Student and VFR Pilots", a cost of "Free", and a credit of "1 Credit for Basic Knowledge Topic 3".

Home About the FAASafety Team

Search FAASafety Website

Activities, Courses, Seminars & Webinars Maintenance Hangar Pilots Resources Administration Page Help

Activities | Courses | Seminars & Webinars | Topic Suggestions

Activities

Search Activities | Activity History

There are hundreds of activities featured on the FAASafety.gov website to augment your training experience. The search tool below furnishes users with a convenient way to find activities and includes the specific WINGS or AMT credits that apply. To search for activities, specify your search parameters below and press "Search".

Search Activities [Close](#)

Keywords:

Activity Type: Seminars Other Activities Courses
 Flight Activities

Program: WINGS
 AMT
 WINGS and AMT
 Rep Training

WINGS Level: Basic Advanced Master
 Knowledge 1 Flight 1
 Knowledge 2 Flight 2
 Knowledge 3 Flight 3

RESULTS 1 - 1 OF 1. PER PAGE

Activity Type	Date	Activity Name	Cost	Credit i
Course		Conducting Preflight Self-Briefings for Student and VFR Pilots	Free	<input type="checkbox"/> 1 Credit for Basic Knowledge Topic 3

<https://bit.ly/WINGS-ALC-683>



Proficiency and Peace of Mind

- Fly regularly with your CFI
- “Revert to training”...only works if...?
- Practice, practice...
 - Get in your head
 - ...and keep it there...
- Document in *WINGS*



WIN – Wings Industry Network

- Making it easier to navigate faasafety.gov
- More info here: <https://www.wingsindustry.com/ez-wings>
- From any browser:
 - <http://www.ezwings.net/>
- **USE IT!!!**



Login FAA WINGS

Request Credit

Validate Requested Credit

Give Credit



FAA Pilot Proficiency Program



•Homework

- Read:
 - AC 00-06
 - AC-00-45H
 - AC 91-92
 - AC 00-63A
 - AC 90-114B
- Read AIM Chapter 7, Section 1 – Safety of Flight
- Practice using 1800wxbrief.com for weather, briefings and filings
- Do *WINGS* course ALC-683
- If you use Foreflight, practice on the ground!
- Call flight service before flight
- Call flight service in flight. Give a PIREP and ask for weather updates



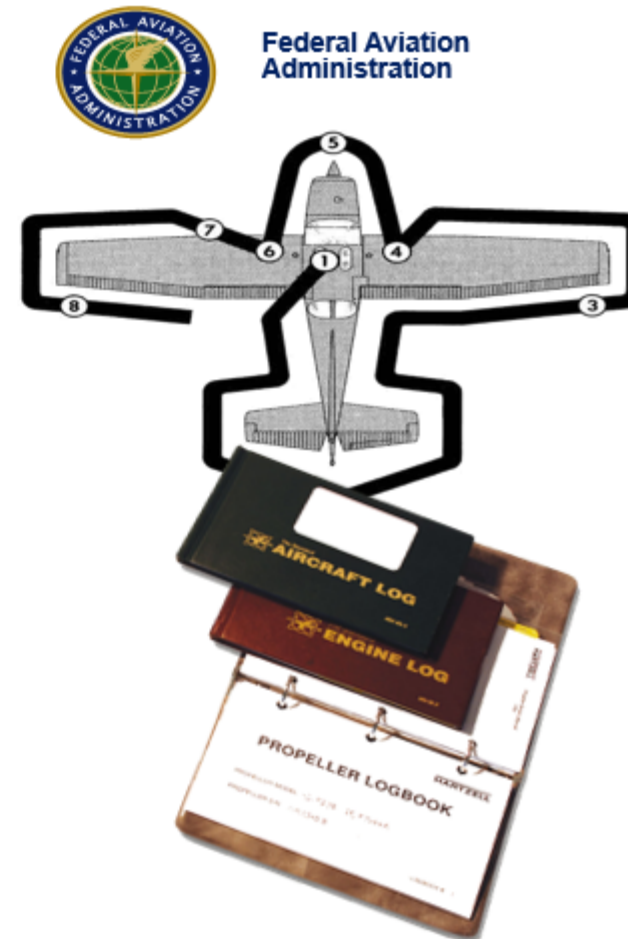
Next Month's ToM:

The National FAA Safety Team Presents

Preflight After Maintenance

Presented to: WAFC and Friends
By: Stephen Bateman, CFI
Date: September 12th, 2022

Produced by National FAA Safety Team (FAASTeam)



Thank you for attending!

You are vital members of our GA safety community!

