

Avel Flight School iPad Presentation by Mike Sandman

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Suggested EFB / Navigation Apps:

• Foreflight

The best weather and planning. You'll know as much as the briefer... except you need to talk to the briefer for TFRs (I get an abbreviated briefing, or just ask for TFRs when I call).

ADS-B weather from Stratus is useless at this time because there's no motion on ADS-B radar like there is on the cellular radar, which is truly wonderful. ADS-B traffic is useless until 2020. They may implement motion on ADS-B radar in the future.

One price for two iPads and one iPhone. The Pro Version is \$75 more which includes georeferenced taxi diagrams and plates.

They have good coverage of Canada, but it costs quite a bit extra. If you fly in Canada it's a no-brainer.

The Stratus 1 and 2 ADS-B receivers only work with Foreflight, and they connect via wifi, which is BAD.

• WingX

Neck and neck with Foreflight in the air at this time. Gives you a split screen, and you can get a crummy implementation of synthetic vision (not good for runways, but good in the mountains). Has weather but no Notams. Not good for planning.

Use it on all your iPads and iPhones for one price. Georeferenced NACO *taxi* diagrams are included in the basic plan. Georeferenced plates are \$75 more. Synthetic Vision is about \$100 more (per year!).

They charge for fuel prices, which are included free with most other EFB apps.

Works with Skyradar and other ADS-B devices. Not a good implementation of ADS-B weather. Traffic is useless until 2020.

• Garmin Pilot

Not great and crashes occasionally. The GDL-39 works well for ADS-B weather which shows animated radar, so it's as good as you can get for free weather (when it doesn't crash or need to be restarted). Traffic is useless until 2020. This is the only app that shows you sports TFRs (stay over 3000' above the blue ring), but it doesn't tell you when they're active (nobody seems to know when they're active).

Use it on two devices (two iPhones, two iPads, or an iPad and iPhone). Around \$75 more for georeferenced plates and another \$25 or so for "Safetaxi" airport diagrams.

The GDL-39 only works with Garmin Pilot (on iOS and Android), and is **Bluetooth** (which is good). It's the best ADS-B receiver out there, but is limited since it can't be used with anybody else's app (which is BAD).

• Skycharts Pro

The least expensive moving map app with Sectionals, Low and High IFR, all the TACs and the back of all the TACs with Class B VFR routes. The little black plane flies over all the charts.

Lets you put in a route and follow the magenta line. Has **north-up** and **track-up**.

Will let you pull up metars if you have a cell connection.

Updating it every month is very painful. Actually horrible. Several times it's caused my iPad to switch from wifi to 3G, and it cost me \$30 or more while downloading overnight.

Once the data is downloaded it works quite well, for almost no money. I haven't had to pay anything again about three years after initially buying it (for maybe \$30?).

Put it on all your iPads and iPhones for one price.

• Anywhere Map

Not great and it crashes often. Has georeferenced plates and NACO taxi diagrams, all for the low base price. It will overlay the approach plate on top of the sectional or Low IFR and do it track-up.

When you fly the ILS 10 into DPA the plate is georeferenced incorrectly. There are probably others. This georeferenced data is **not** from Seattle Avionics (so far I haven't heard about any errors on plates from them).

Has some unique features, but it's not updated often or supported. If you already use Anywhere Map it will be familiar to you. It crashes often so it's not something that would be safe to use in the cockpit at this point. But it's the cheapest way to get georeferenced plates and taxi diagrams, and it has north-up and track-up.

You can use it on all your iPhones and iPads. The iPhone version is probably too small to use except in an emergency.

• MyWingman from Bendix King

The worst of the lot. Constantly crashes. Totally unusable.

It has a horrible implementation of synthetic vision where your view is a chase plane above and to the right of the a little plane in-front of you. All in all total garbage and 100% worthless.

It's actually written by Seattle Avionics, who writes **terrible** software. If you ever bought Voyager or the free crippled DUAT EFB for PCs, and you use the same email address, you **must** use the same password you used with those windows programs. If you don't, it will tell you that you entered the wrong password (you won't know that this is a Seattle Avionics app unless you read the reviews, or see this presentation).

A 12 year old could have written this app better.

• Xavion

Synthetic vision that rivals a G1000 display, on an iPad. It uses the gyros in the iPad to show the attitude (cheap AHRS), or it will use an AHRS device like the Levil (a piece of junk in my opinion – I sold mine).

Its main purpose is to show you what airport you can glide to if the engine stops. It very accurately shows you hoops to fly through to the nearest airport that you can make - with energy left to make the landing (it aims you for the middle of the runway). Put in or take out flaps to stay in the middle of the hoop.

Has verbal audio terrain and attitude warnings which means if you connect your bluetooth headset to your iPad you'll hear the warning in your headset. Way better than chimes and dings (AnywhereMap), or just a warning on the screen (WingX and Foreflight).

Not ready for prime time, but it's fun to play with and it could save you from making an off-airport landing if all the planets were lined up correctly for you that day.

The synthetic vision is good enough so that you could probably safely land using it if the windshield was covered in bird guts.

Could make flying **on-top** and **at night** substantially safer if you can find a place to mount the iPad. It requires that the iPad be mounted **solidly**, straight up and down (can't be mounted on the yoke because the yoke moves and it would throw the gyros off).

Works OK on my iPad mini which I can kind of get mounted solidly in the cockpit, and it works OK on the full size iPad which is nearly impossible to mount solidly in a small GA plane if I want to be able to look outside or see the panel after it's mounted.

You can use it on as many iPads and iPhones as you have, but it doesn't work well on my iPhone 4 (I think the processor is being overworked so it's very jumpy). Maybe it would work better on the iPhone 5?

Using any EFB:

Did you really download the charts you'll need?

After planning a trip put your iPad in **airplane mode** as a test (which will turn off 3G/4G and wifi) and look at the various airports you'll be near and the charts/plates you'll be using to make sure they are downloaded into your iPad. Most EFBs require you to download new data about once a month. It could take all night on wifi for most of the country. It would be **very** expensive to do that on 3G / 4G!

Remember to take it out of airplane mode after you check it. This process is important since you won't be able to download charts or airport info from cellular in the air!

Note that an iPad that doesn't have 3G /4G also *doesn't have a GPS*.

There are a bunch of bluetooth GPSs and combination GPS / ADS-B receivers out there. If you get a combination unit the battery won't last as long as a GPS only device.

The Dual Bluetooth GPS receiver (around \$100) works well for me.

The Bad Elf works OK plugged into the older iPads with 30 pin connectors, and is powered by the iPad (no external battery needed), but doesn't work well with the new small "Lightning" connector on the newer iPads.

Buy an iPad with 3G / 4G **even if you're not going to use 3G** so you get the GPS. It's well worth it!

Buy an iPad with Enough Memory!

A 16G iPad is not enough for aviation stuff. 32G would be fine unless you have a lot of EFB apps (like me) and want to download large parts of the US in all of them. The iPad1 is too old and slow for this stuff.

Get at least TWO EFB apps!

There is a 100% chance that an EFB app will crash, the data that you downloaded will be bad or have a bug, or you'll take an update the night before your flight and it won't even run when you're in the plane.

Don't update both EFB apps or the data just before a trip. If one of the apps won't run you'll have your backup to get you to your destination. Week old data isn't going to hurt you (in most cases!).

Use an iPhone as a backup!

All of the EFB apps let you use the app on your iPhone for no extra charge. **Do it!** The iPad **will** crash at the worst possible time.

Foreflight will run on the newer iPod touches. I think WingX will, too? You need an external GPS for that.

I setup my iPhone with the same plate as the iPad when I'm practicing an approach. I did have my iPad crash to a blank screen on a practice approach into FEP one day. Absolutely a non-event. I just started glancing at the iPhone for situational awareness (which is really nice on a course reversal like the RFD VOR transition to the 24 ILS at FEP).

Mount the iPad and iPhone!

There are lots of RAM mounts. I put the iPad on the copilot yoke and the iPhone on the windscreen to the left with a suction cup (much more difficult in the Pipers with the totally curved windscreens). They're always in the same place so my fingers know exactly where to go and what to do.

Helpful Apps:

iFlyWhere: Put in your departure airport and how many miles you want to fly (like maybe 50 to 60 for an IFR cross country) and it puts a push-pin on a map of each of those airports in the ring. Pretty handy!

CFI Toolbox: In my opinion the easiest Weight and Balance app (there are lots), and it gives you Takeoff / Landing Distances for many types of planes.

Preflight Wx+: Similar to CFI Toolbox (from the same instructor), but adds a forecast that will give you the weather 2 to 3 days out. It's pretty accurate (uses weather service long-range data). I'm glad I bought it (wasn't cheap). iPad only.

LostCom: Simply shows the meaning of the light gun. There's no way I would remember that.

TFRs: Shows you TFRs on a map, and lists them by state. Like with all the apps it tells you to check with a briefer (it even says that on the FAA's own website).

AeroWeather Pro (not the free one): Gives you metars and TAFs that are pretty close to as helpful as Foreflight. If you don't have Foreflight, get this app for weather and notams. Nice inexpensive app.

DenAlt: Put in the field elevation, temperature, dew point and altimeter, and it tells you the density altitude. On a hot day in the mountains it could keep me from doing something stupid.

It doesn't mention that you should lean, but you should lean! **NOT** 50 degrees rich of peak, but for maximum performance (maximum RPM).

ZuluTime: Pretty useful app that shows you what time it is UTC, and in your time zone or multiple time zones. There are others, but in my opinion this works well and will work in landscape on the iPad.

Sporty's E6B: *Very complete* and easy to use digital E6B (not legal to use on FAA written). The chances you will ever use anything in it if you have Foreflight is nil, but worth having just in-case.

Trip Advisor: Check out the hotels listed in Foreflight before you call them! The #1 thing to look for would be comments about bedbugs (I found out the hard way on a visit to Toronto).

Dropbox: Very useful app for storing any kind of file. I have a scan of my license and medical in there, lots of pictures and movies, scans of POHs and manuals, exe files I might need on a computer some time, and porn. 2 gig is free and you can use it on all your iPads, iPhones, androids, PCs and Macs. Works well.

Goodreader: PDF reader that makes it very easy to go through PDFs and other documents. Much more friendly than the Dropbox and Foreflight document readers. You can transfer documents from Dropbox or Foreflight into Goodreader easily. It also lets you annotate PDFs.

DataUsagePro: If you tell it the date that your 3G / 4G renews for the month, it will tell you how much data you've used and if you will go, or do over.

Working on your Instrument? The best **written** and **oral** practice tests are from **Dauntless**. They also have Private Pilot versions for the written and oral. The guy at Dauntless is a jerk, and their Windows stuff is junk, but the iPad stuff works well.

For the instrument **oral** try **Instrument Pilot Oral Exam Summary** from goldsealflight.com. They also have a Private Pilot version. They're audio programs that you can listen to in the car or wherever. Well worth listening to multiple times.

FitPlan.com: I can't figure it out and don't use it. Some guys swear by it. Maybe you'll like it?

Really fun for a geek like me:

Flightradar24: This is more fun than a barrel of monkeys. 100% useless app but it shows you every plane almost anywhere in the world with ADS-B out. The neat part is that they just added a 3D mode where it shows you the view out the front of the plane using Google Earth as it flies along at 30,000 feet, or coming into a landing at an airport. You can also turn on FAA data so you'll see all the aircraft on flight plans as well as all the planes with ADS-B out (like flightaware, but easier to use).

LiveATC: Match this up so you're listening to approach for the airport while you're watching the planes in Flightradar24, and it's more fun than a barrel of antelopes. Listen in almost real time as the planes are vectored for the approach. Works well at DPA where the tower and approach are on the same feed.

Accessed through Safari or any web browser:

<http://www.weathermeister.com/> : This is the best way to see weather / notams along a route.

This \$5 a month service lets you put in your route, tell it if you want to see everything within 25 or 50 miles of the route, and get an easy to understand, nicely formatted plain English list of all the metars, TAFS, notams and TFRs (it tells you to check with a briefer) at all the airports *along the route*.

I actually read the whole page before I takeoff figuring that it would be good to know about stuff along the way in-case I have to divert (I'm not a Senator so I can't land on a closed runway).

It also shows a profile of the terrain along the route so you know the highest terrain you'll encounter for planning (Foreflight doesn't do that, but WingX does).

It gives you the Graphical Airmet (G-Airmet) which shows you what's going to happen over the next six or so hours – in a much easier format than overlaying different shaped boxes in different colors over each other.

The G-Airmet is particularly useful for seeing forecast mountain obscuration. It really helped me get over the Smokey Mountains a couple of times, and convinced me to not try to go over – to go around them once. There aren't many weather stations, and pireps are few and far between in the mountains.

A word of warning... DON'T put in an email address for TFR notifications at weathermeister. They're jerks. They send an email to the address you sign up with, but they also send an email to the email address for the TFR notifications when your account is going to expire. **At 1AM. FOUR times.**

I cancelled the account and signed up for their monthly service using an email address that won't go to my phone and wake me up in the middle of the night (they generally don't issue TFRs in the middle of the night).

Also bookmark these pages in your browser:

You can go direct to the ADDS site to see the G-Airmet without paying for weathermeister:

www.aviationweather.gov/products/gairmet/

For a legend to the symbols used on aviation weather maps (I can never remember some of them) go to:

www.hpc.ncep.noaa.gov/html/fntcodes2.shtml

Don't Buy:

POHs from PunkStar Studios. They are seriously lacking most of the POH. For instance, they only have cruise data for 65% power. What if you want to go faster? Total junk.

Learning to use your iPad in the cockpit:

None of the EFB programs are intuitive. It just plain takes teaching your finger where to find the stuff. Trying to learn it in the cockpit is a bad idea and could lead to some very unusual attitude recoveries.

Same story with the KLN-94, 430s, Aspens and autopilots!

Take a look at: http://www.nts.gov/aviationquery/brief.aspx?ev_id=20111130X22453&key=1 to see what happened to one pilot messing with his panel instead of flying the plane.

You can setup Flight Simulator 2004 (or FSX) on your PC at home, take off, and see just what you'd see in the plane on your iPad and iPhone using an inexpensive Windows program (\$10).

Turn on real-world weather in FS9 and if you have an Internet connection, Jepp usually keeps their FS weather server running so you'll see the real weather on the simulator monitor and your iPad.

FSXflight: <http://www.fsxflight.com/>

Sends Wi-Fi data from your PC running FS9 or FSX to your iPad or iPhone. You need:

- An older XP machine with a reasonable graphics card for FS9 (but it will work on W7)
- The FSXflight Windows Program. \$20 on-sale at this time.
- Microsoft FS9, also known as Microsoft Flight Simulator FS 2004, which is the easiest to install and run, even on older PCs. Around \$15 used on Amazon.
- An add-in for FS9 called FSUIPC (about \$30, or you can use the free version – but you **really** need the features of the paid version to make FS9 work well)
- An iPhone or iPad with Foreflight or WingX (those are the only apps it currently works with).
- A joystick (or yoke and rudder pedals).

I have a lot of other stuff on my simulator, but you don't need anything else to practice on your iPad or iPhone. This is what mine looks like: <http://www.sandman.com/images/Simulator-iPad1sm.jpg>

You need to be a geek or have a geek available to set it all up, but it's not hard or time consuming. The results are worth it.

Use FS9, FSUIPC, a CH Products yoke and Rudders, and a free 172S from RealAir which flies exactly like a real 172 (unlike the planes that come with FS9). Scroll down the following page for the free 172 download:

http://www.realairsimulations.com/list_box.php?page=downloads

Most of the planes that come with FS9 or FSX are uncontrollable on the ground. The RealAir 172, after tuning the sensitivities in FS9 and using FSUIPC for fine adjustments is perfect.

I can set the FS9 winds to a direct crosswind gusting to 25 knots and it's exactly like landing the real thing (at least on my simulator after tuning, using the CH yoke and rudders).

A simulator at home is the least expensive way for you to stay in the game, VFR and IFR, without spending a lot of money!

• X-Plane Simulator

X-Plane 10 will output its GPS position to Foreflight, Wing-X and Xavion.

It's fairly cheap, you can download a demo for free to see if it will run on your computer, and it does output GPS data to the iPad. It needs a **very** modern fast and powerful PC and video card to run. There are also versions for Linux and the Mac.

I personally find it totally uncontrollable and totally unlike a real plane that's ever flown on earth. But it gets a little better when they update it on a fairly regular basis. I don't know if I'll live long enough to be happy with version 10.

Lots of Aviation Apps in the App Store!

There are a zillion apps and videos about planes in the itunes store. Be sure to read the reviews before buying one or even downloading a free one! Or ask me. I think I bought most of them.

Anything aviation related (at least the better quality stuff) seems to be more expensive than other categories of stuff in the App Store.

When you think about what you get for \$150 a year in Foreflight or WingX for their full blown versions with georeferenced plates, the cost is nothing compared to anything else in aviation. And it could save you or your loved ones by giving you all available information when you **really** need it.