CLEARED TO LAND

Newsletter For The Pilots of MidContinent Airlines April 2019

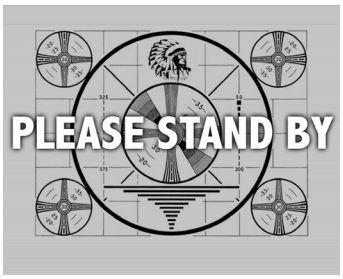
View From the Top

A Message from Michael Collier / CEO

Welcome to the April issue! We're pleased to add a couple of new sections this month. Dispatch Sector will cover news and items of flight planning interest from the Ops Control Center. Weather Wise will, as the name implies, cover seasonal aviation meteorology topics

Action Item Update

- No major updates on our action item list this month. Many of our list items are tied directly to potential features in PMDG's Global Flight Operations. More updates as this operational environment unfolds and we see what it's capable of.



In This Issue

DC3

FlightSimExpo

We are currently making plans to attend and exhibit at FlightSimExpo during the second weekend in June.

If you haven't attended one of these types of events before we would certainly encourage you to do so.

It's a fun-filled weekend spent with others that enjoy our hobby and it allows you to interact directly with some of your favorite developers, try out new products, and attend a variety of interesting lectures.

When you register please ensure you list MidCon Airlines as an affiliation!

Mark Your Calendars!

Flightline News

Proving runs for the 787 fleet are progressing and should be completed on half the existing fleet by early next week. Entry into service is slated for the second half of April

The remaining deliveries are on schedule.

Work is also in progress on the regional operation. More news to follow in the May issue. We hope to have the regional schedule published well ahead of FSExpo in early June.

Dispatch Sector

News from the Operations Control Center in Kansas City.

Welcome to the new section covering topics of interest for flight planning!

Dispatch is currently laying groundwork for revision to the way enroute reserve fuel is calculated under Op Spec B343.

The new Op Spec will move from a fixed 5% E/RSV to a variable reserve known as **Performance Based Contingency Fuel / PBCF.**

We will discuss this in greater detail as this moves forward. This will require some changes to the flight planning system (PFPX).

Fuel-Smart

Highest

FPO - $3.86/gallon

Lowest

BRU - $1.98/gallon

Hubs

JFK - $2.06/gallon

LAX - $2.23/gallon

MCI - $2.09/gallon

MIA - $2.15/gallon

PHX - $2.08/gallon

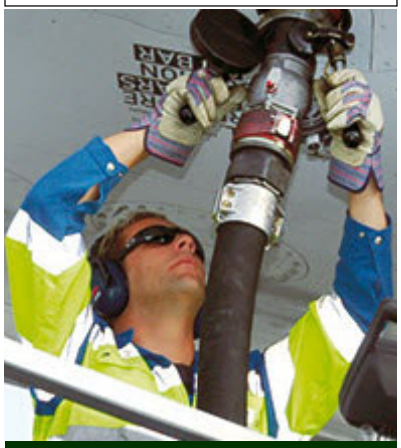
March Arrival Fuel

Average gate arrival fuel by fleet

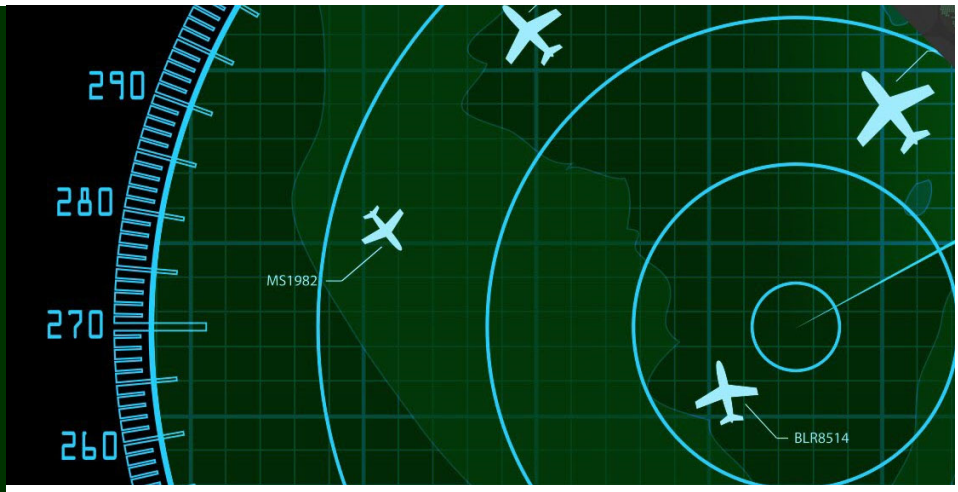
737 - 6,437 lbs.

777 - 18,122 lbs.

787 - 12,374 lbs.



On The Radar



April VATSIM ATC Events of interest

Friday April 12th:

- ZLC featuring SLC

Saturday April 13th:

- ZKC ZDV featuring MCI DEN

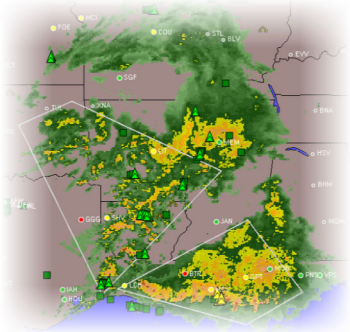
Monday April 15th:

- ZLA featuring LAS

Friday April 26th:

- ZBW featuring BOS

Center NOTAMs



The last two months have been spent looking at FAA resources for airspace status/delay programs and advisories.

As we kick off the Spring thunderstorm season, April provides a good opportunity to review the Traffic Flow Management Convective Forecast, or **TCF.**

For those of you that have been around a while, you may be more familiar with the former name, Collaborative Convective Forecast Product, or **CCFP.**

The page can be accessed here: https://www.aviationweather.gov/tcf

What is TCF?

The TCF is a high-confidence graphical representation of forecasted convection meeting specific criteria of coverage, intensity, and echo top height. **The TCF graphics are produced every 2 hours and valid at 4-, 6-, and 8- hours after issuance time.**

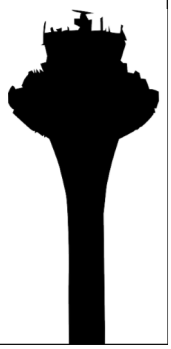
Areas of convection in the TCF include any area of convective cells containing (at a minimum):

a. Composite radar reflectivity of at least 40 dBZ;

b. Echo tops at or above FL250;

c. Coverage (a & b) of at least 25% of the polygon area;

d. Forecaster confidence of at least 50% (High) that criteria (a, b, & c) will be met.



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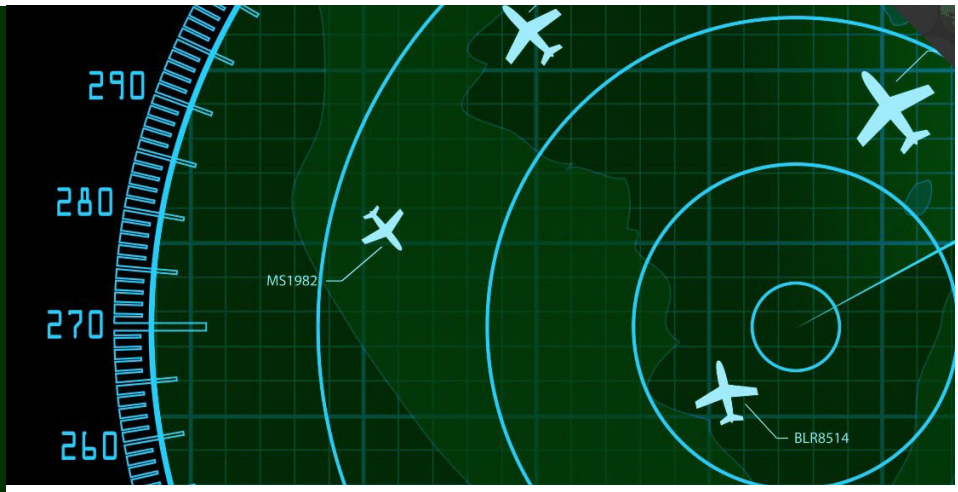

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Center NOTAMs

Lines of convection in the TCF include any lines of convective cells:

a. Composite radar reflectivity of at least 40 dBZ having a length of at least 100 nautical miles (NM); and

b. Having a linear coverage of 75% or greater; and

c. Having echo tops at or above FL250.

d. Forecaster confidence of at least 50% (High) that criteria (a, b, & c) will be met.

All four of the threshold criteria listed above for both areas and lines of convection are required for inclusion in the TCF. This is defined as the minimum TCF criteria.

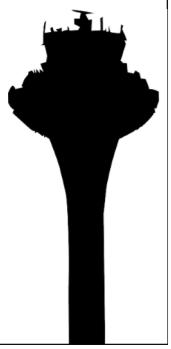
The TCF domain is the Flight Information Regions (FIR) covering the 48 contiguous states and adjacent coastal waters. It also includes the Canadian airspace south of a line from Thunder Bay, Ontario to Quebec City, Quebec.

Availability

From March 1 through October 31 the TCF is collaboratively produced by meteorologists at the Aviation Weather Center (AWC) in Kansas City, Missouri, the Federal Aviation Administration (FAA) Air Traffic Control System Command Center (ATCSCC) in Warrenton, Virginia; the Center Weather Service Units (CWSU) at each Air Route Traffic Control Center (ARTCC); various airlines; and by other authorized participants.

Users

The TCF is used by air traffic management decision-makers in support of convective weather mitigation strategies within the NAS. It is designed to meet the needs of TFM decision makers at the FAA System Command Center (ATCSCC), Air Route Traffic Control Centers (ARTCC), and airline Operations Control Centers.



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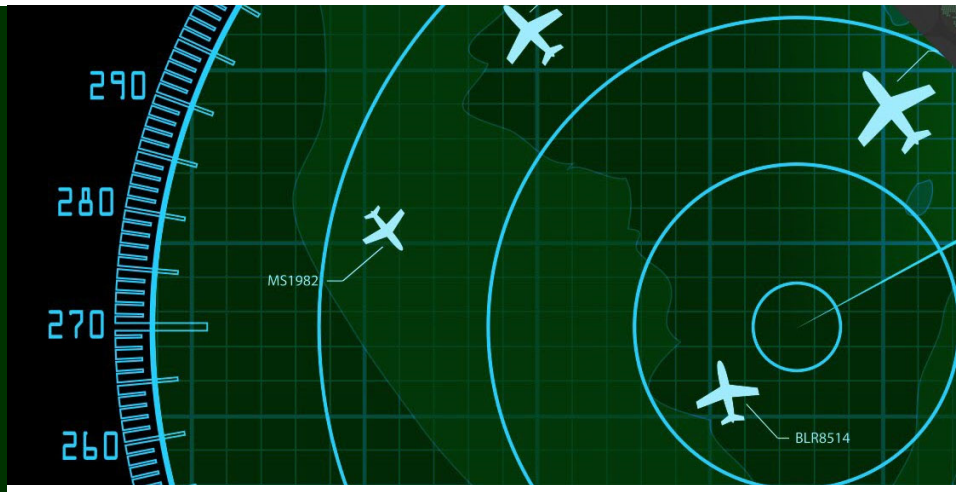

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Center NOTAMs

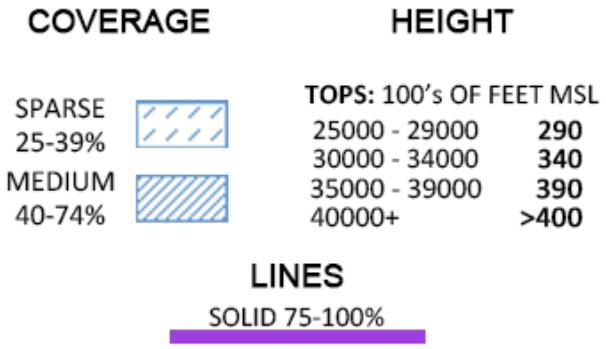
How Do I Use It?

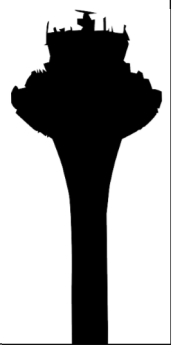
The chart legend is shown below, and is pretty easy to interpret.

The polygon areas with the hashed lines will show the percentage of expected thunderstorm coverage in the affected area.

Within the coverage areas, if the cloud tops will be FL250 to FL290 it will be noted with a **290.** FL300-340, noted with **340,** etc.

Coverage of 75-100% is considered a solid line.





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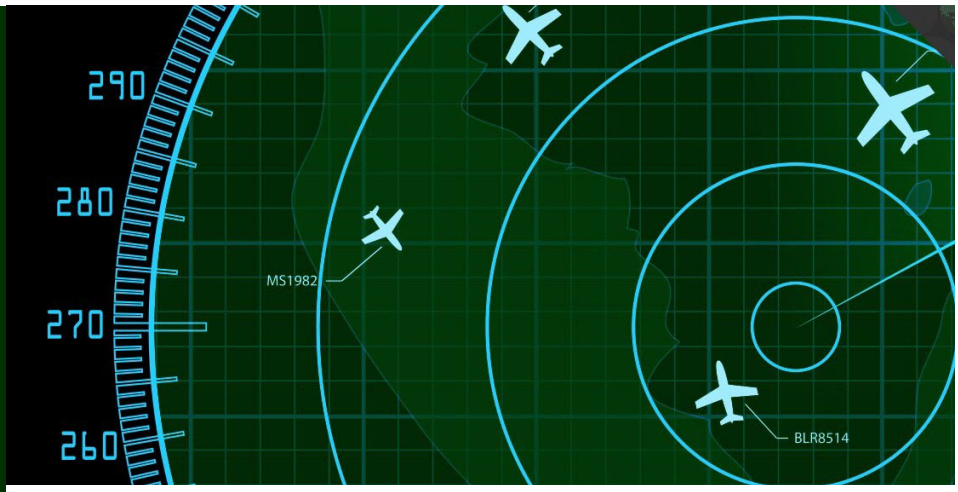

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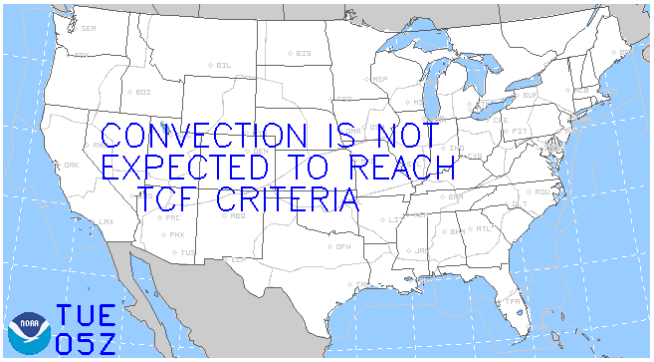
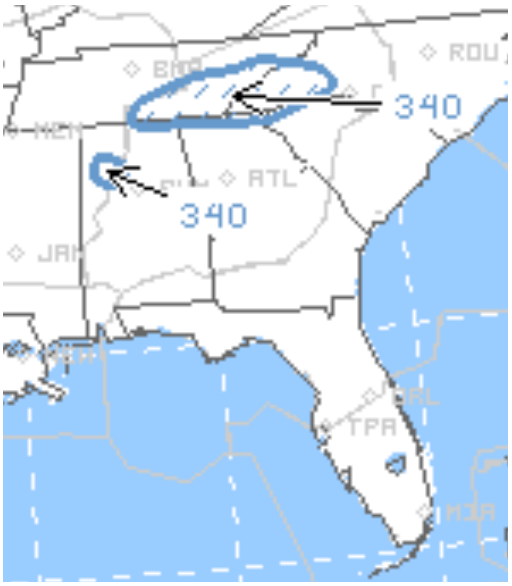
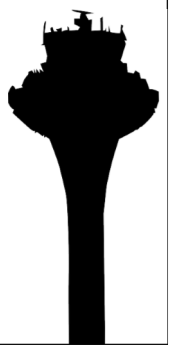
Center NOTAMs

If convective weather is not expected to meet TCF criteria then it will be noted as such on the chart. A good day to fly!



The example below shows “sparse” coverage in portions of Atlanta Center with expected tops between FL300-340.





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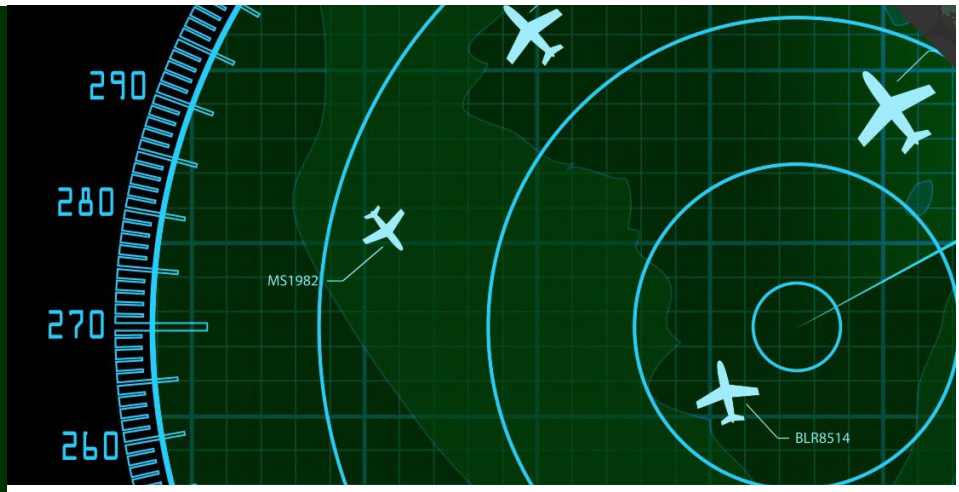

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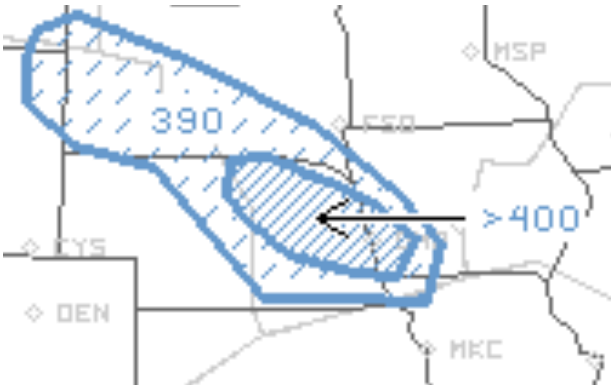
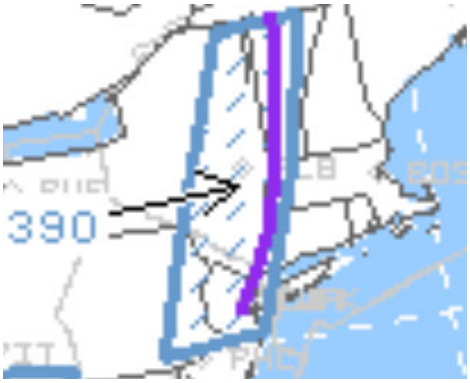
Center NOTAMs

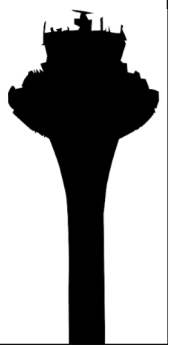
This example shows widespread sparse coverage with tops from FL350-390 with an embedded area of medium coverage with tops in excess of FL400.

A quick glance at this chart suggests that Dispatch may want to consider routes to avoid these areas.



This one is an example of sparse coverage with tops FL350-390 behind a solid line of thunderstorms.





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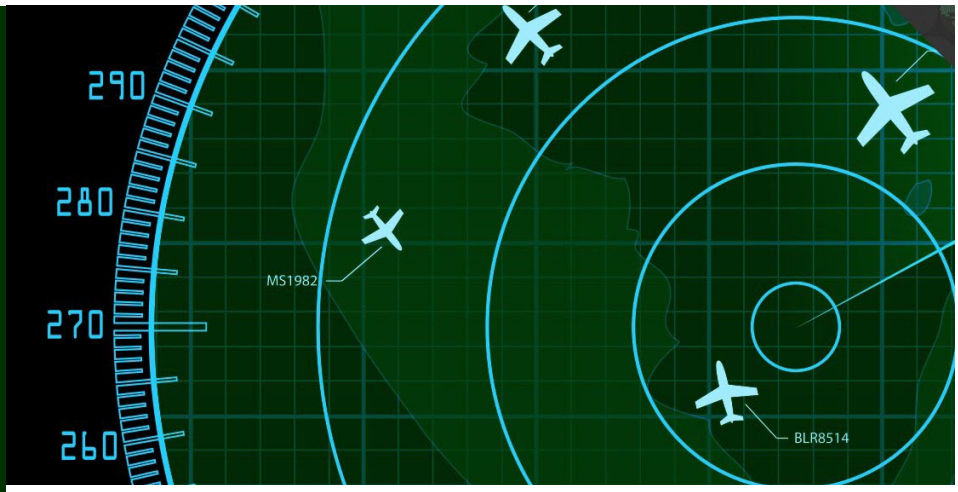

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Center NOTAMs

The System Command Center and ARTCCs will also be using this product when planning traffic flow. If you see a very active day forecast on the TCF you can bet there will also be route advisories and possibly ground delay programs/stops active as well, so don't forget to check those!

Can ATC Help Me Avoid Weather?

While ATC can sometimes provide a bigger picture of what is out there, keep in mind that the controller's first priority is to separate aircraft and issue safety alerts regarding terrain, obstructions, and other aircraft.

Additional services to assist pilots in avoiding areas of precipitation will be provided if possible, but it is contingent upon higher priority duties.

If you have prepared properly prior to departure you should already have a good idea of what type of weather systems you will encounter along the route.

It is important to remember that ATC radar only shows areas of precipitation, and not all ATC radar can determine intensity.

Those that can will use the terms "Light", "Moderate", "Heavy", and "Extreme". When the intensity cannot be determined, the controller will state "Intensity Unknown".

It is your responsibility to be familiar with route weather.

ATC can tell you what is in your immediate path but will not tell you what to do, that is up to you.

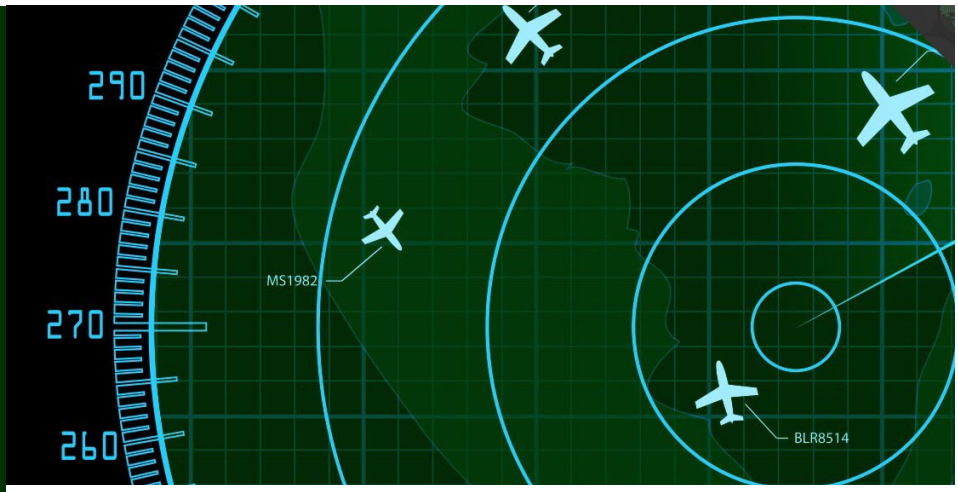
Be prepared to tell ATC what you want to do.

Some Helpful Tips

ATC describes; the PIC decides!

- It is not ATC's job to keep you out of severe weather!
  - Do you need to deviate from your route?
  - Do you need to deviate from your altitude?"
- ASK for information. NEVER make assumptions.
- Make sure you understand what services ATC is providing.
- Pipe up with PIREPs—report your flight conditions to ATC.

On The Radar



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Center NOTAMs

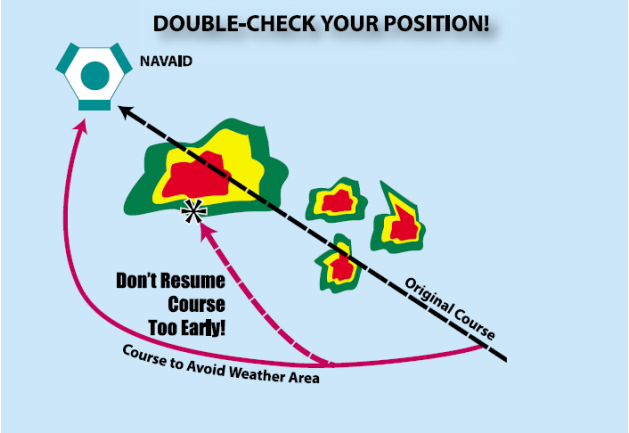
When requesting approval to deviate around weather activity, it is helpful to include the following information:

- The proposed point where the detour will commence;
- The proposed route and extent of the detour (direction and distance);
- The point where original route will be resumed
- Any further deviation(s) that become necessary.

If you are flying an off-course heading that is taking you around or away from bad weather and ATC issues you a clearance to resume on course or proceed direct to the next NAVAID when able, ***maintain your situational awareness!***

In other words, don't undo what you were trying to do! If you turn to the direct heading too soon, you could very well put yourself on a direct course to enter the same weather that you were trying to avoid!

When weather becomes a disruption, greater demands are placed on the controllers. Don't wait until the last moment before asking for a deviation.



See our new column "Weather Wise" on the next page for more thunderstorm discussion!

Weather Wise

Welcome to our new home for all things related to aviation weather!

This time of year our attention turns to thunderstorms, so we're excited to kick off this column with a review of convective activity and the associated hazards to aviation.

As pilots, thunderstorms are one of the most hazardous conditions we can encounter. All thunderstorms are capable of producing severe turbulence, low level wind shear, low ceilings and visibilities, hail and lightning. Any one of these hazards can be difficult to handle, but if they arrive all at once the results can be disastrous.

Thunderstorms are formed by a process called convection, or the transport of heat energy. Three things are needed for convection to become a hazard to flight: **Moisture, lift and instability.**

- **Moisture -** Sufficient moisture must be present for clouds to form.
- **Lift -** There are many ways for air to be lifted into the atmosphere. Convection, or buoyancy is one method. Other methods include fronts, low pressure systems, interactions between thunderstorms, and interactions between the jet stream and surface weather systems. Air can also be lifted mechanically such as when it is lifted up and over mountain ranges. Regardless of how it happens, if the lift is enough to make the air warmer than the surrounding air, convection can continue.
- **Instability -** In general, as altitude increases the air temperature cools. How fast the air cools is a measure of atmospheric stability. Meteorologists refer to this vertical change in temperature as the lapse rate. The temperature generally decreases from between 2.7°F - 5.4°F per 1000 feet. If the actual rising air cools slower than the lapse rate, the air remains relatively warm compared to the surroundings, and it continues to rise.

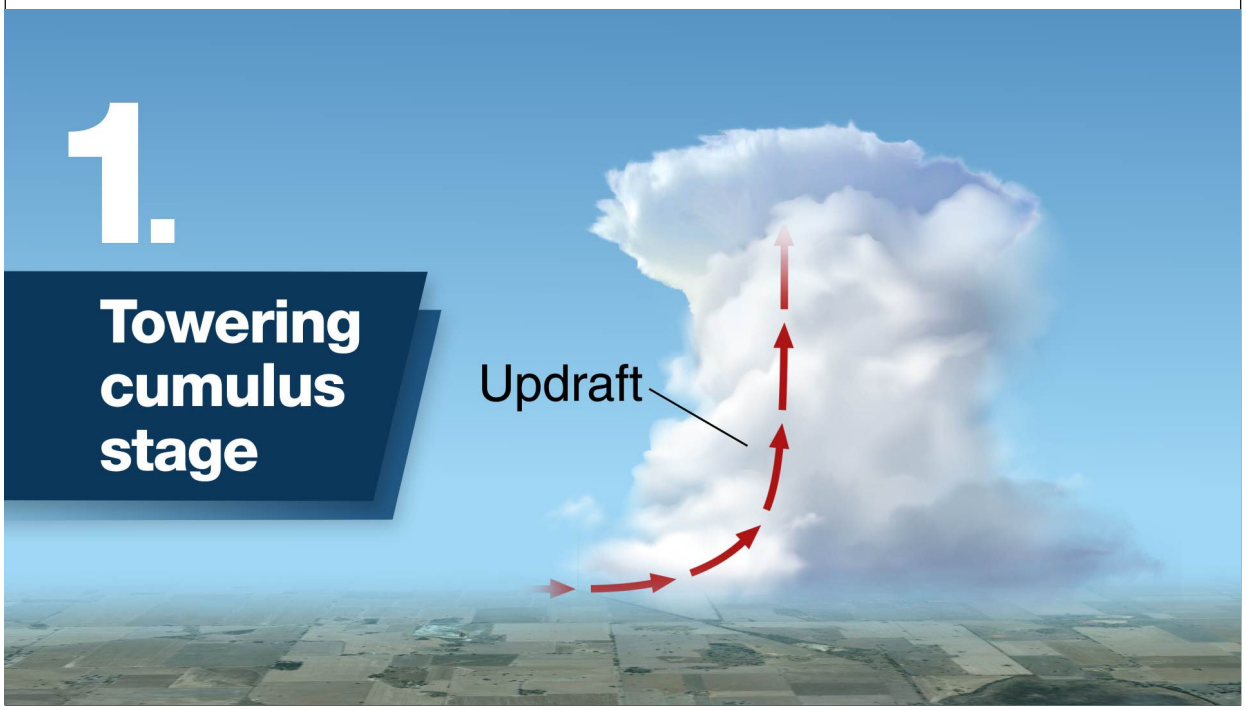
Weather Wise

Three Stages of Thunderstorms

Towering Cumulus Stage:

This is the stage of a thunderstorm once convection has begun and a cloud is visible.

This stage is characterized by upward motion throughout the entire cloud. Aviation hazards from this stage include turbulence and icing. Even though the cloud is composed of all liquid, some of the liquid is “supercooled,” in other words, liquid water can exist at temperatures below the normal freezing point.

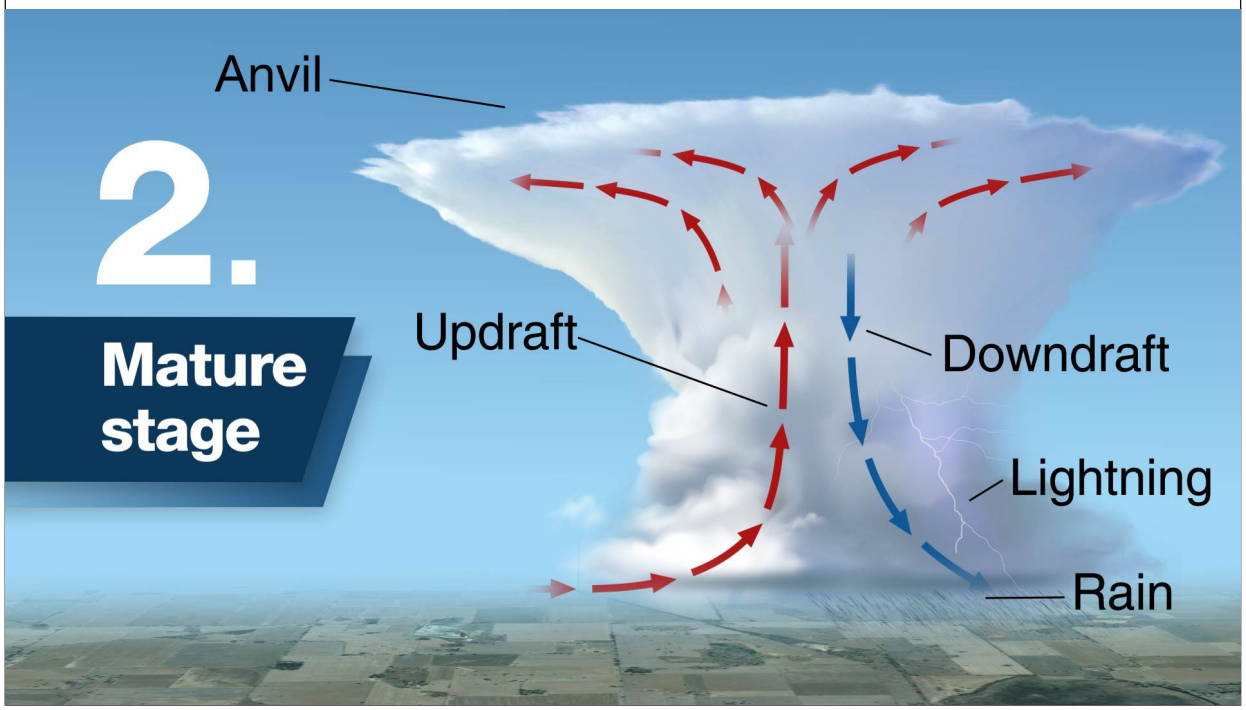


Weather Wise

Three Stages of Thunderstorms

Mature Stage:

This stage is characterized by the production of precipitation. Both updrafts and downdrafts are present and lightning is being produced. The mature thunderstorm contains water, supercooled water and ice.



Weather Wise

Three Stages of Thunderstorms

Dissipating Stage:

During dissipation, the updraft is very weak or non-existent, and the downdraft is the main dominant force in the thunderstorm. The thunderstorm slowly dies out and leaves only wispy clouds behind as evidence of its existence. This whole process usually goes by rather quickly and lasts about 30 minutes to an hour.

Weather Wise

Thunderstorm Classification

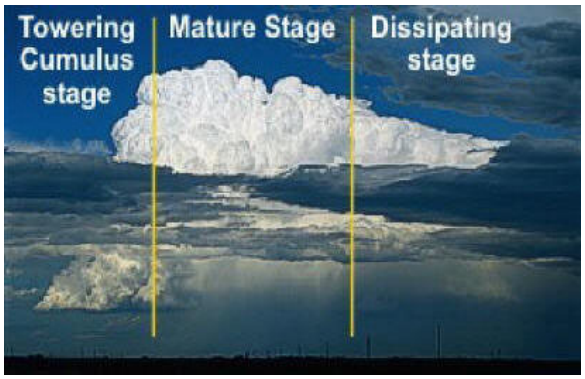
Single Cell:

Single cell thunderstorms are sometimes referred to as "airmass", “popcorn”, or “pulse" thunderstorms, and usually do not produce severe weather. They often form in regions of warm, moist air with no strong fronts in the area.

Each thunderstorm follows the life cycle of a typical thunderstorm with development, maturity, and decay occurring over a period of 30 minutes to an hour.

They may contain heavy rain and can also produce occasional downbursts, small hail, and (rarely) weak tornadoes, but these are fairly rare in single cell storms.

Multi-Cell Cluster:



Multi-cell clusters are basically what the title says; a cluster of thunderstorms that form and move together. But how do multi-cell clusters form?

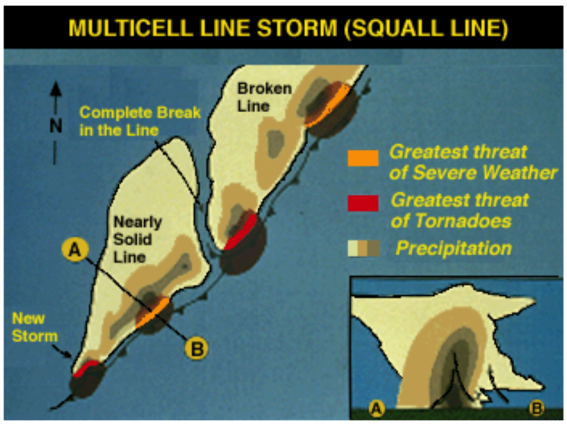
When a single cell thunderstorm forms, it produces a downdraft that can create a gust front of cool air near the ground. The gust front contains denser air than its surroundings, and as it spreads out, it ‘lifts’ the surrounding warm air around it. That ‘lift’ may be just enough to create another updraft which would lead to the formation of one or more additional thunderstorms.

This cycle can repeat itself for hours before the cluster of thunderstorms finally dies down. Much like single cell thunderstorms, multi-cell thunderstorms are usually just heavy rain makers, but can produce hail, strong winds, and occasional tornadoes.

Weather Wise

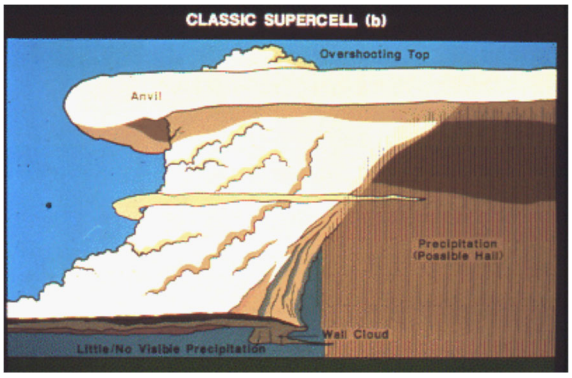
Thunderstorm Classification

Multi-Cell Lines



Multi-cell lines are like multi-cell clusters except that they form in a line rather than in a group together. These lines of storms are often called squall lines and they can stretch up to several hundred miles long. The gust front in squall lines is focused mostly ahead of the storms rather than spreading out in all directions. The most dangerous feature with squall lines are often the winds, as winds with these lines can sometimes exceed over 70 mph! Other threats include isolated tornadoes, hail, and flash flooding. Squall lines most often form in the warm, moist air ahead of an advancing cold front and can move through several hours before the main front passes.

Supercells:



Supercells are the most dangerous kind of thunderstorms as they can produce large hail, dangerous winds, and violent tornadoes. Thankfully, supercells are one of the rarest kind of thunderstorms that exist, and only form under certain conditions. What makes a supercell unique from all other thunderstorms is the presence of a mesocyclone. A mesocyclone is basically an area of strong updrafts which spin as the air moves upwards. The main way mesocyclones form are from the wind shear in the atmosphere. On radar, supercells can often be seen in a typical "hook echo" pattern, which shows a rain-free area right where the strongest updraft is occurring. The large hail and/or tornadoes are most often found in the wrap-around hook near the back of the storm as it is seen on radar.

Weather Wise

MidCon Company Policy

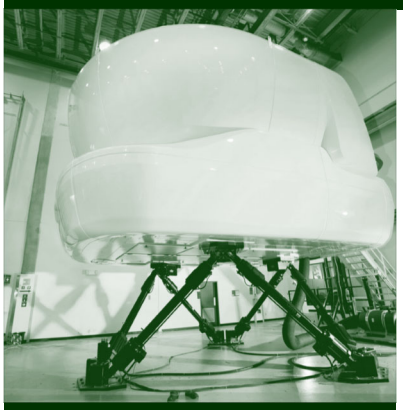
Flight Operations Manual

6.4 Hazardous Weather

6.4.1 Dispatch Policy

Flights will not dispatch or operate through areas of forecast or reported hazardous weather unless these hazards can be avoided by:

- Changing route or altitude
- Delaying takeoff or landing
- Holding
- Landing at an alternate



Training Talk

Captain Eric Hill, Director of Training / 737 Fleet Captain

In light of recent events and pending 738MAX aircraft orders I'd like to take the time to discuss something that American Airlines highlighted nearly 20 years ago and is still mandatory training today. Automation management.

Once upon a time before CRM and RNAV were ever a thought, steely-eyed Captains commanded a crew of at least 3 through the phases of a flight and management of a increasingly complex aircraft. In the past 40 years technology has relieved some of the burden from flight crews and left the industry to breath an ill-conceived sigh of relief. In the late 80's it was the opinion of the industry that the automation not only saved money on crew but could prevent the crew from being the dreaded "pilot error" liability. In short, a very Twilight Zone mentality of "the computer can fly it better than you….let it do it!" was adopted. This gave birth to, what Capt. Vanderbergh aptly calls, the "Children of the Magenta." An automation dependent, direct-to, VNAV/LNAV, pilot whom only commands the plane until 500 AGL and again at 1000 AGL. Essentially a flight deck of systems monitors and computer programmers. Needless to say, when the chips were down and pilots needed to earn their pay the resulting blood trail led to a change in SOPs.

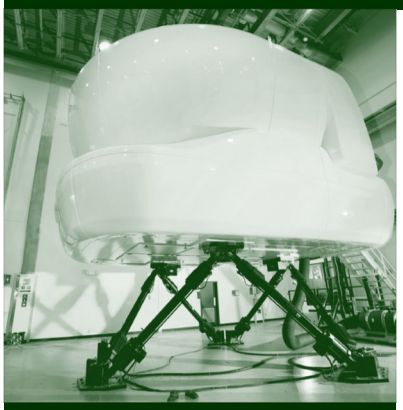
The video linked at the end of this article explains the need for and use of various levels of automation. Captain Vanderbergh's speaking style is much more interesting than I can do justice trying to write, so I highly recommend the video. I will, however, highlight the theory of managing levels of automation.

Highest level is basically full FMC control of the flight with the autopilot engaged. Useful in cruise flight and when both crew's attention needs to be focused elsewhere such as division of labor troubleshooting a problem at altitude.

Next level would be the PF "flying" the aircraft with the autopilot via commanding the MCP with the aid of the PNF. Typically done during the departure procedure or early/initial approach phase. In this case both pilots are focused on operation of the aircraft but, the automation is an assistant.

NOTE: AT NO TIME SHOULD MORE THAN ONE PILOT BE "HEADS DOWN" PROGRAMMING THE "BOX"

Next level would be essentially hand flying with the aid of the flight directed commanded to the correct mode by the MCP and perhaps the auto-throttle maintaining thrust management. Useful again during departure and arrival phases.



Training Talk

Finally, **"click click, click click"** If ever confused by automation's reaction or if you're behind in managing the automation disconnect and figure it out. You **SHOULD** still be a pilot. Stick with what you know and fly the plane. **Aviate Navigate Communicate**. I'm pretty sure I heard that somewhere.

Let's look at an instance where going directly from highest level of automation to the bottom might be appropriate.

First thing that comes to my mind is turbulence. Our aircraft operating manual has some guidance on this:

Turbulence - Moderate

During flight in light to moderate turbulence, the autopilot and/or autothrottle may

remain engaged unless performance is objectionable. Increased thrust lever activity can be expected when encountering wind, temperature changes and large pressure changes.

Short time airspeed excursions of 10 to 15 knots can be expected.

1. FASTEN BELTS.....ON
2. Make PA.

Turbulence - Severe

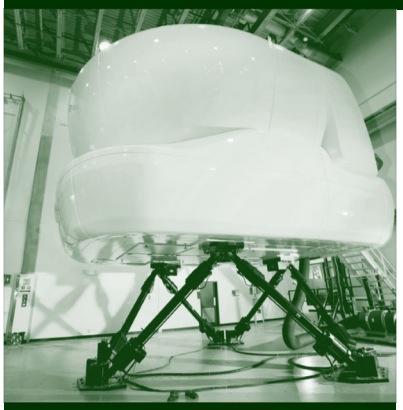
1. Yaw Damper .....ON
2. Autothrottle .....Disengage
3. AUTOPILOT .....CWS

   A/P status annunciators display CWS for pitch and roll.

   • Note •

   If sustained trimming occurs, disengage the autopilot.

4. ENGINE START switches (both) .....FLT



Training Talk

5. Thrust levers (both).....Set

Set thrust as required for the phase of flight (Refer to table below).

Change thrust setting only if required to modify an unacceptable speed trend.

Phase of Flight	Airspeed
Climb	280 KIAS or .76 Mach whichever is lower
Cruise	Use FMC recommended thrust settings. If the FMC is inoperative, for approximate N1 settings that maintain near optimum penetration speeds, refer to QRH for Flight Instruments, Displays/Airspeed Unreliable.
Descent	.76 Mach / 280 / 250 KIAS whichever is lower. If severe turbulence is encountered at altitudes below 15,000 feet and the aircraft gross weight is less than the maximum landing weight, the aircraft may be slowed to 250 knots in the clean configuration

• Note •

If an approach must be made into an area of severe turbulence, delay flap extension as long as possible. The aircraft can withstand higher gust loads in the clean configuration.

6. FASTEN BELTS.....ON

7. Make PA.

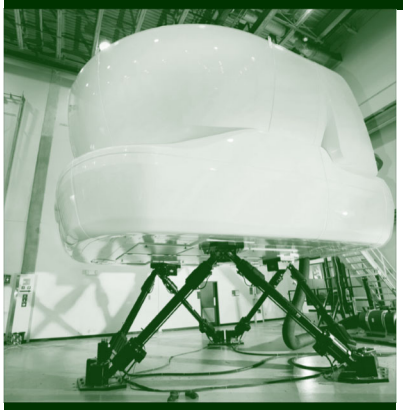
Training Talk

It is also worth reviewing turbulence intensities and reporting.

Aeronautical Information Manual (AIM) 7-1-23 **PIREPs Relating To Turbulence** advises pilots to report conditions to ATC as soon as practicable.

Intensity	Aircraft Reaction	Reaction Inside Aircraft	Reporting Term-Definition
Light	Turbulence that momentarily causes slight, erratic changes in altitude and/or attitude (pitch, roll, yaw). Report as **Light Turbulence;** 1 or Turbulence that causes slight, rapid and somewhat rhythmic bumpiness without appreciable changes in altitude or attitude. Report as **Light Chop**	Occupants may feel a slight strain against seat belts or shoulder straps. Unsecured objects may be displaced slightly. Food service may be conducted and little or no difficulty is encountered in walking.	**Occasional-** Less than 1/3 of the time. **Intermittent-** 1/3 to 2/3 of the time. **Continuous-** More than 2/3 of the time.
Moderate	Turbulence that is similar to Light Turbulence but of greater intensity. Changes in altitude and/or attitude occur but the aircraft remains in positive control at all times. It usually causes variations in indicated airspeed. Report as **Moderate Turbulence;1** or Turbulence that is similar to Light Chop but of greater intensity. It causes rapid bumps or jolts without appreciable changes in aircraft altitude or attitude. Report as **Moderate Chop.1**	Occupants feel definite strains against seat belts or shoulder straps. Unsecured objects are dislodged. Foodservice and walking are difficult.	**NOTE** 1. Pilots should report location, time UTC), intensity, whether in or near clouds, altitude, type of aircraft and, when applicable, duration of turbulence. 2. Duration may be based on time between two locations or over a single location. All locations should be readily identifiable. **EXAMPLES:** a. Over Omaha. 1232Z, Moderate Turbulence, in cloud, Flight Level 310, B737. b. From 50 miles south of Albuquerque to 30 miles north of Phoenix,1210Z to 1250Z, occasional Moderate Chop, Flight Level 330, MD80
Severe	Turbulence that causes large, abrupt changes in altitude and/or attitude. It usually causes large variations in indicated airspeed. Aircraft may be momentarily out of control. Report as **Severe Turbulence.**1	Occupants are forced violently against seat belts or shoulder straps. Unsecured objects are tossed about. Food Service and walking are impossible.	
Extreme	Turbulence in which the aircraft is violently tossed about and is practically impossible to control. It may cause structural damage. Report as **ExtremeTurbulence.1**		

1 High level turbulence (normally above 15,000 feet ASL) not associated with cumuliform cloudiness, including thunderstorms, should be reported as CAT (clear air turbulence) preceded by the appropriate intensity, or light or moderate chop.



Training Talk

Anything more than moderate turbulence the crew should at least disconnect the pitch and roll modes of automation and fly the aircraft.

Pitch trim runaways and uncommanded rolls are more obvious reasons to, again, revert to the lowest mode of automation.

Let's face it, we have all heard the guys on VATSIM flying transport category aircraft simply because they learned how to push all the right buttons. That's not piloting. A pilot can and DOES fly the airplane.

I challenge you to hand fly more below 10,000' and try to think of more situations where using lower levels of automation is appropriate.

I highly recommend the linked video as well.

https://vimeo.com/159496346

Any questions, the door is always open.

"Clear left, I'll have the chicken…"

Captain Eric Hill, Director of Training / 737 Fleet Captain

ehill@midconair.net

Fleet News

As reported in the Flight Line News column, proving runs for the existing 787's are slated to conclude with entry into service scheduled for later in April.

We currently have one of our CRJ's in the paint hangar receiving a special livery.

A sneak preview of the tail is shown to the right.

Any guesses as to what will be represented?

Pilot Profile

Bill Meyers

P436

Like many of you I started with flight simulators in the mid-1980's.

Yes, SubLogic FS2 was my first flight sim and the game was on! That was followed by SubLogic: ATP and that's where my FS experience took a somewhat divergent path. I found the FS Forum on Compuserve and came across an incredibly talented developer named Simon Hradecky. I became a huge fan of his work and consequently Airline Simulator 1 (AS1), ATPUTIL, 3D-AGS, and AS2 kept me in the virtual skies for many years. I flew with a VA called Sun Air along with our own Tonny Koops and Jeff Stewart. Sun Air became the genesis for my interest in MidCon and as further development slowed on these sims I finally transitioned over to FS9, FSX, and currently use P3Dv4 exclusively.

My background is in aviation beginning with my first flight at age 7 on a North Central Airlines DC-3 from Willow Run (YIP) to Traverse City (TVC) Michigan.

My aviation career started with a small Michigan commuter airline flying BE-99's. My next stop was with North Central Airlines stationed out of ORD and later, DTW.

The skies were black with CV-580's and DC-9's! After acquiring Southern Airways and then Hughes AirWest, NCA became Republic Airlines and gone were the "good old days" of Herman the Duck aka "The Wacky Quacky". It was a great time to have been a part of the airline industry but very glad I got out when I did. That reason was to become an Air Traffic Controller in 1981.

I was hired in August of that year after having spent over two years on the hiring list. For some reason the FAA had several openings at the time! I started as a controller at LSE (non-radar appch control), GRR ATCT, MSP ATCT, SLC TRACON, SDL ATCT, RST ATCT, and finally ended up at MKG ATCT retiring in 2007.

During my career I was a Controller, Supervisor, Plans and Procedures Specialist, Quality Assurance/Training Specialist, and Air Traffic Manager.

Pilot Profile

Bill Meyers

P436

After retirement, and as if to demonstrate my need for substantial mental care, I became an ATC instructor working for the University of Oklahoma training new controllers at the FAA Academy in OKC. I left that position in 2010 to become fully retired here in West Michigan.

My wife and I have been married for almost 44 years (she claims two or three of those years were actually pretty good!) with five grandchildren.

My hobbies include boating, golf, smoking meats, tasting good bourbon, music (I play bass and keyboards), building computers, and of course, all things MidCon!