

## How do monsoons affect aviation? Valley 101 finds out

Kaely Monahan

**Pilot Clip** Good afternoon. This is your captain speaking with just a little flight information. Coming up on the left, we're going to be catching a glimpse of the Grand Canyon. On the right, you can be able to see the Hoover Dam in just a few minutes. We're flying at an altitude of 37,000 feet and our airspeed is 400 miles an hour.

**KM** Phoenix has blue skies for days, about 300 of them, actually. Arizona ranks as the sunniest region in the whole United States.

**Music** Never seen the sky so blue. The birds are singing. I got nothing to do. It's just a sunny day.

**KM** Our state has a long history of aviation and pioneering pilots. There was Marie Graham and Ruth Reinhold, two of the first female pilots in our state. And in fact, Reinhold was Senator Barry Goldwater's flight instructor. There was also Lincoln Ragsdale, whom I fell a producer, Amanda Luberto, explored in a two-parter for Valley 101. And you might recognize this name Frank Luke Jr. Born in Phoenix in 1897. He was an American fighter ace credited with 19 aerial victories, ranking him second among the United States Army Air Service pilots after Captain Eddie Rickenbacker during World War 1. Luke was the first airman to receive the Medal of Honor and the first United States Army Air Service ace in his day. And Luke Air Force Base is named after him. These are only a few of the famous aviators from the Valley. And let's not forget that one of the very first municipally owned airfields was built by the Tucson Chamber of Commerce in 1919. Right now, depending on how inclusive you want to be, there are 77 flight schools in Arizona, and you can learn to fly anything from fixed wing aircraft to helicopters to even gliders and less traditional flight methods. Hot air ballooning. Anyone?

**Music** Dee dee dee dee dee dee. Hey, hey, hey, it's just a sunny day!

**KM** Welcome to Valley 101.

**Music** It's just a sunny, Da-da-da Day.

**KM** We're in Arizona Republic and AZCentral podcast that answers your questions about Phoenix and beyond. I'm Kaely Monahan, your captain for today. On this trip will be exploring why Arizona is such a hot spot for aviation and learning how to fly.

**Pilot Clip** Flight attendants prepare for takeoff.

**KM** When it comes to why there are so many flight schools in Arizona, it really boils down to one thing our skies.

**Tim Holt** I don't think anybody that hasn't lived in Arizona or visited hasn't said we have the best skies.

**KM** This is Tim Holt, dean of the College of Aviation at Embry-Riddle Aeronautical University in Prescott.

**Tim Holt** I've lived all over the country. When you talk are sunset, sunrise, but just the depth of our skies. I think Arizona lends itself to be a perfect spot to learn to fly and really just a perfect spot for aviation training in general.

**KM** Aside from his career in aeronautical education, Tim spent 22 years in the U.S. Navy flying both planes and helicopters, and he's logged more than 2500 hours as a flight instructor and evaluator. Like so many, his passion for aviation began as a child.

**Tim Holt** For me, I had a cousin who was a big Chuck Yeager fan, Pappy Boynton. Early days of aviation.

**KM** Both incredible airmen from the World War 2 era.

**Tim Holt** And he kind of brought me into it. But I think the biggest shock was the Rockford Airshow in Rockford, Illinois, and being around the aircraft, watching them, because for many of us, it takes kind of on a mystique of art. When you look at the lines and the design and the engineering.

**KM** I caught up with Tim virtually and asked him why Arizona is so popular for flight schools.

**Tim Holt** I think that aside from the weather, when you look at airspace now up in northern Arizona, we've got the airspace roughly the size of Connecticut. So it lends itself, especially when you're that private pilot and learning and moving on to that professional pilot realm between the weather, the airspace, the geography, it's all a wonderful place for aviation. And as you can tell, that's kind of the catalyst as some of the best schools in the country here in Arizona, both internationally and for our own training.

**KM** Tim also pointed out that there's a lot of support from various municipalities. Aviation is an attractive field to invest in.

**Tim Holt** Citizenry is supportive of flight training programs to understand what it means to our national interests and vacations and travel and the pilot shortage and everything else with Aerospace States Association works very closely with our our state government.

**KM** As far as summer storms. Tim says it's not a huge issue, especially compared to weather patterns in other parts of the country.

**Tim Holt** We do have a monsoon season, so there's a small impact time. But, you know, even that you can really fly around.

**KM** Speaking of flying around, I turn to the pilot I know best. My dad, Captain Michael Monahan, was a commercial airline pilot for more than 30 years.

**Michael Monahan** Well, I was a flight instructor during college. Then shortly afterwards, I began flying passengers professionally for the commuters. And that was 1984. Then for a major airline, starting in 1987.

**KM** And that major airline.

**America West Commercial** America West! We fly with pride. We care for you. America West! We fly on wing so bright and new!

**KM** But before he settled with them, he flew all kinds of planes. And you might want to call the aviation nerd in your life for this part.

**Michael Monahan** I had the opportunity to fly Piper Aircraft, the Cherokee six, the Piper Lance, the twin engine Comanche. I also flew many of the single engine Cessna aircraft, the Cessna 150, 152 trainers, thousands of hours in that as a flight instructor. I also flew the pressurized Cessna 210, a few of the twin engine models, the Cessna 310 and the Cessna 402. Then when I was hired by the commuter airlines, I flew what's called a Fairchild Swearingen Metroliner. They don't make them anymore, but it was a 19 passenger twin engine turboprop commuter plane. Then after a couple of years in the commuters, I began my career with the major airline flying Boeing's 757, 737 and then on to the Airbus aircraft, the 319, 320, and 321.

**KM** I remember when he made the jump from Boeing to Airbus, it was a big deal. And for those who don't know, Boeing uses the traditional airplane steering wheel or yoke, as it's properly called. The Airbus doesn't have that. Instead, it's a small joystick on the left hand side of the captain seat and on the right for the first officer. I remember you telling me that one of your first aviation jobs was actually flying mail up and down the coast of California.

**Michael Monahan** Yeah, that was between being a flight instructor and getting a job with the commuter airline. But yeah, we flew bank checks during the middle of the night. Up and down California. So yeah, that was quite exciting. But at the time being young and.

**KM** How young?

**Michael Monahan** At that time I was probably I was 23 years old, so it was just a lot of fun and I enjoyed every minute of it.

**KM** Growing up, I heard all the stories about mechanicals and weather and wild experiences. Most of the delays were due to weather events outside of our state or the odd mechanical every once in a while. I was never afraid of weather and neither was my dad. I recall he would teasingly say weather was fun because it actually gave him something to do while in the air. Otherwise, the plane just flies itself. But moving to Arizona and flying here was a new experience for my dad, who was in his late twenties at the time.

**Michael Monahan** Yes, our state does have that monsoon season. My first encounter with this weather, it was like so there we were in the middle of the night. The sky was like a black canopy with little pinpoints, four stars. Now, it's not that dramatic flying around the thunderstorms. At least it shouldn't be.

**KM** Now, Captain Monahan was quick to assert that he's not a meteorologist. However, by nature of the job, he knows a bit more about weather science than your average passenger. And when it comes to thunderstorms and monsoon season, the main thing you do is go around.

**Michael Monahan** In aviation weather. Thunderstorms are what we call like convective clouds, cumulonimbus clouds. And they can and do create most of the more severe weather hazards for aviation. So we can't control the weather, but we can safely operate around it.

**KM** During monsoon season, most of the time, planes will fly around the thunderheads you see building up in the sky. But when they do roll in and release their downpour, you might be stuck in a holding pattern in the air until a storm passes.

**Michael Monahan** Some of the hazards of a thunderstorm are usually they're kind of obviously they can create wind shear, severe turbulence also at lower altitudes, microburst. So those can pose serious performance issues and exceed the performance of most aircraft, especially during takeoff and landing. So it's very important to see and avoid delay, but the weather move and clear out before you take off and landing.

**KM** Speaking of delays, this reminds me of another memory. When Sky Harbor remodeled the inside of Terminal 4, they put in carpet with the pattern of circles in planes. I thought it was pretty cool, but my dad jokingly said that he hated it because it reminded him of holding patterns which after flying all day for several legs, can be the worst since all you want to do is land and go home. But back to flying and wacky weather.

**Michael Monahan** What's important is that you seen a void. You know, you do not want to fly too close to a thunderstorm. Even above it can be dangerous, especially below it. So you take delay tactics. So that's either through a holding pattern, ground stops. What you do is you're waiting for the weather to improve into to clear out.

**KM** Well, what are the weather phenomenon that I feel like would be the most freaky to encounter? There's a lightning strike. You've experienced this a few times. Can you tell me about a couple of the memorable lightning strikes that you've experienced?

**Michael Monahan** Yes, I have been. The aircraft has been struck by lightning. And if the discharge event happens at night, you'll see a bright flash and perhaps even a hear a loud pop sound.

**KM** The Daily Mail reposted a video of lightning hitting an airplane and you could hear the muffled pop my dad mentioned, as well as the startled pilots. For.

**Michael Monahan** So the dozen or so times that it's happened to me, the good news is that the aircraft is engineered to handle these discharge events. And happily, for me personally, nothing else happened to the aircraft except that you have to make a pilot report to the air traffic control so they can tell other aircraft pilots in the area about lightning. And then when you get on the ground, you have to fill out a bunch of paperwork so that Mainers can make a full inspection once you're back on the ground.

**KM** One of those experiences actually happened at Sky Harbor.

**Michael Monahan** It was dusk, and we were having the monsoonal activity that we get here in the summer. And being at the gate, the front cabin door was open, passengers were on board, fueling was finished, but the baggage handlers were still loading some last minute bags. And then all of a sudden we saw this flash and then allow pop. And we looked around and thought, wow, did that just hit us? Just seconds later, the baggage handler came up and said, we were just struck by lightning. So took a kind of an assessment of everything and everyone. Nobody was injured or hurt. So, yeah, it was quite startling. Normally it happens in flight, but not on the ground.

**KM** Of course, flying isn't just about avoiding weather. Sometimes nature puts on a show. I asked my dad what were the coolest things he saw while up in the air.

**Michael Monahan** So many things that I could mention. But my favorite weather phenomenon would be St. Elmo's Fire. And from the flight deck it looks like continuous white and bluish like lightning. Sparks that dance on the windscreen in front of you. It can happen during the day or at night, but especially at night. It's quite spectacular. You can also see it around the wingtips if you're a passenger at night. Anything that has kind of like sharp edges, you see like a whitish bluish glow. Well, that's St. Elmo's Fire. Typically when you're flying in the vicinity of thunderstorms, that's when it's most noticeable and at night.

**KM** You. I couldn't wrap up our chat without asking him to give us his captain sign off.

**Michael Monahan** Ladies and gentlemen, welcome to New York. We do thank you for flying. We hope that you enjoyed your experience with us. And we hope that you come back and fly with us again.

**KM** Now I should tell you what actually inspired this episode in the first place. Listener Andrew Latham sent us this question.

**Speaker 6** Do Phoenix's dust storms impact operations at Sky Harbor Airport like takeoffs, landings, engine longevity, etc.?

**KM** The short answer is yes, but that didn't stop my own curiosity. I reached out to the Federal Aviation Association, or FAA to dig up some more concrete answers to Andrew's question. According to an FAA spokesperson, big storms like Arizona's monsoons often cause delays. They could even result in cancellations or diversions to other airports. At the beginning of August 2022, a monsoon storm caused more than 100 flights to be delayed or canceled at Sky Harbor. Southwest was the most affected due to a lightning strike, knocking out connectivity in their systems. In fact, lightning and dust can shut down all movement on an airfield if they take place within five miles or reduce visibility below safety minimums. The FAA also noted that monsoon season not only brings thunderstorms and lightning, but it carries strong, gusty winds. Dust storms and low level wind shear that abruptly changes direction. And all of this can make for challenging flight operations. Oh, and wind shear. I asked my dad, Captain Michael Monahan, about that.

**Michael Monahan** Yeah. It's a sudden change of air speed in a very narrow space.

**KM** On average, flight delays can cost airlines billions of dollars every year. Some estimates put it close to \$30 billion in the U.S. alone, as weather patterns change due to fluctuation, climate weather delays in particular could start becoming a more regular occurrence. But one thing is for sure. For most of the year, Arizona has great skies to fly in.

**KM** Special thanks to our fall intern, Thomas France for voicing our listener question. You'll get to hear his stories in the upcoming weeks. Do you have questions about Phoenix Skies Aviation or are you just curious about the Valley? Send us your questions to [Valley101@azcentral.com](mailto:Valley101@azcentral.com).

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