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Mountain Flying Additional Resources

1. Mountain Flying Bible - Sparky Imeson
2. FAA Mountain Flying Tips
3. NTSB Safety Alert Mastering Mountain Flying
4. Rocky Mountain High: The Zen of Mountain Flying
5. Koch Chart
6. EZWxBrief - Scott Dennstaedt
7. McCall Mountain Flying
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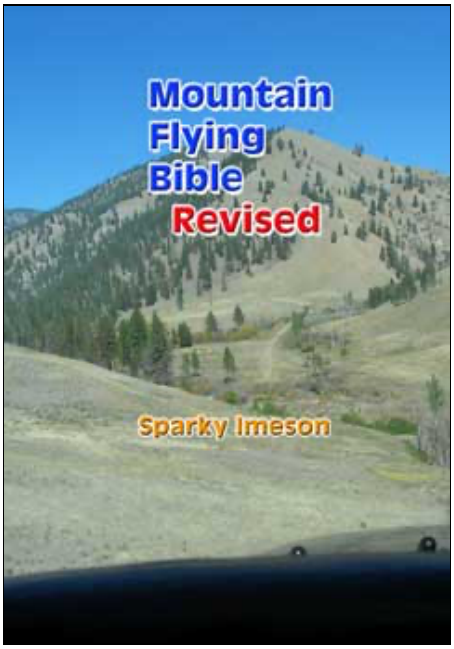
Mountain Flying Bible Revised



Mountain flying demands its own rules and an entirely different set of flying skills than flatland flying. The new ***Mountain Flying Bible Revised*** contains 100-percent new information. It is jam-packed with updated advice, lore, science, and wisdom. This edition contains 16 pages of color photos operating into some Idaho backcountry airstrips.

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Review of the ***Mountain Flying Bible*** – This book is one of those that all pilots can learn from (just as it deepened my understanding in many areas), and should be part of every serious pilot's reference library. It is, in all likelihood, the best aviation book written in recent years that focuses on light aircraft. Certainly it is the most useful. I recommend it without reservation.

— F.E. Potts, author of ***F.E. Potts' Guide to Bush Flying: Concepts and Techniques for the Pro***

For more than 40 years pilots have relied on author and aviator Sparky Imeson's mountain flying expertise. His ***Mountain Flying Bible Revised*** is the new comprehensive standard for mountain flying.

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Mountain Flying

Flying over mountains can offer beautiful scenery and views you just can't get from the ground. Whether it's the Rockies, the Appalachians, or the Alps, mountain flying is often an unforgettable experience. However, keep in mind that mountain flying also involves more risks than flying over the flatlands.

Mountain Weather

Mountain weather can be a challenge for any pilot, especially those without a lot of experience. The Colorado Pilots Association has these weather minimums recommendations for inexperienced pilots.

⇒ ***Maximum Winds aloft at 9,000 and 12,000 feet less than 25 knots.*** *Above 25 knots, turbulence, updrafts, and downdrafts may exceed aircraft limitations.*

⇒ ***Ceiling at least 2,000 feet above all ridges and passes along the route.*** *This will help reduce the exposure to the most hazardous turbulence in most cases. The ceiling minimum should be increased as the wind speed increases.*

⇒ ***Visibility of at least 10 miles.*** *Good visibility, well above the basic VFR requirements, is needed since you will generally be using pilotage for navigating. GPS is an excellent tool, but there are times when picking out a particular pass or valley will need to be done visually. Good visibility is the only way to be able to do that safely.*

⇒ ***Be aware of mountain waves.*** *During a mountain wave event, there are strong up and down drafts downwind from the ridges. The downdrafts in even moderate mountain waves exceed 1,000 feet per minute, making it difficult or impossible to cross the ridge. Rotors are caused by the wind shear and rotating moment underneath the crest of a mountain wave. The rotors will cause severe or greater turbulence and must be avoided.*

Density Altitude

Failure to take density altitude into consideration has led many pilots into situations their aircraft couldn't handle. It is imperative that you understand how your aircraft performance is affected by density altitude. Even in the early evening, density altitude can be quite high and can present problems if you are not properly trained and prepared. Keep in mind the following:

⇒ ***True Airspeed increases****. True Airspeed is approximately 2% higher than Indicated Airspeed for every thousand feet of altitude*

⇒ ***Power decreases.*** *Normally aspirated engines put out less horsepower than at sea level (3% power loss per thousand feet).*

⇒ ***Leaning for take off.*** *At sea level or the low levels of the Midwest, takeoffs with full rich mixture are required. However, at higher density altitudes, even those found at airports along the Front Range of the Rockies from New Mexico to Wyoming, leaning for takeoff is the only way to get the expected performance from a normally aspirated engine.*

Planning Tools

Planning a mountain flight involves finding points in space, not predefined intersections. You are looking for terrain features, such as passes and drainages. Using GPS waypoints in conjunction with an electronic app on your tablet or smartphone, is a good way to maintain situational awareness and avoid getting lost in unfamiliar terrain.

⇒ ***Some states produce tools to help pilots navigate their mountains safely.*** *One example is produced by the Colorado Aeronautical Division and shows all of the Automated Weather Observing Systems (AWOS) locations in the state, including those on mountain ridges.*

⇒ ***Webcams are also useful for a real time look at the weather along your route.*** *Airportview.net is one place to go for cameras located at airports. Most state departments of transportation also have webcams that will give you a real-time look weather in places you may be operating.*

⇒ ***Many of us are now viewing the radar image on our iPad apps while in flight.*** *However, radar and mountains don't mix very well. For example, the Denver NEXRAD system can't see anything below about FL230 over the central part of the state. You may not be seeing the complete picture because of these limitations.*

What Gets Pilots in Trouble?

Mountainous terrain can be hazardous for GA pilots. Here are some of the ways pilots get in trouble in the mountains.

⇒ ***Picking the wrong route*** *has claimed many pilots who didn't have local knowledge of issues that might be associated with some passes.*

⇒ ***Wishful Thinking.*** *Hoping that bad weather will suddenly get better when we need it to has trapped many pilots. Consider landing or turning around if the weather does not cooperate.*

⇒ ***Poor Planning.*** *Before descending into a mountain airport, look at what your options are for go-arounds and takeoff routes.*

⇒ ***Box Canyon.*** *Never fly up a canyon that you haven't already flown down so that you know if there is room to turn around. NEVER try to out climb the terrain in ANY airplane.*

Resources

- Pilot's Handbook of Aeronautical Knowledge, Chapter 11: Aircraft Performance http://1.usa.gov/2nBxvNT
- NTSB Safety Alert: Mastering Mountain Flying http://1.usa.gov/2p2lot1
- Colorado Pilots Association www.coloradopilots.org
- "Rocky Mountain High: The Zen of Mountain Flying," *FAA Safety Briefing*, May/June 2012 https://go.usa.gov/xXBZq

NTSB

SAFETY ALERT

National Transportation Safety Board

Mastering Mountain Flying

Training is essential for mountain flying safety

The problem

- Pilots with limited or no training in mountain flying can be surprised about their aircraft's different performance at high density altitude, often leading to serious or fatal accidents.
- Wind and other weather phenomena interacting with mountainous terrain often lead unsuspecting pilots into situations that are beyond their capabilities.
- Should a crash occur, a pilot who survives the crash but does not have emergency or survival gear immediately accessible may not survive the harsh environment until rescuers are able to reach the location.

Related accidents

The NTSB has investigated numerous accidents in which limited or no training resulted in accidents in mountainous terrain.

- A pilot and two passengers of a Piper Cherokee 235 were fatally injured when trying to follow an interstate highway over a high mountain pass. Employees of the fixed base operator (FBO) at the departure airport reported that the pilot had asked about routes across the mountains. Based on the conditions at the time of the accident, the airplane's climb rate would have been reduced by more than 90 percent. It is likely that, as the pilot attempted to cross over the mountainous terrain near the pass, he raised the airplane's nose to the point that he exceeded the airplane's critical angle of attack. With the airplane's decreased performance, this led to an aerodynamic stall and loss of control. (CEN14FA328)
- A private pilot and three passengers of a Mooney M20E were fatally injured during takeoff in gusty wind conditions from an airport located at an elevation of 8,380 feet. The pilot had no prior experience flying out of the accident airport and limited experience flying in mountainous terrain. Witnesses reported that the pilot seemed confident about his ability to fly the airplane and he was not concerned with the wind conditions. As the airplane departed, the reported wind was 33 knots, gusting to 47 knots. Later review of weather data showed mountain wave activity in the area. After the airplane lifted from the runway, it crabbed into the wind, and then rose and fell repeatedly as its wings rocked, before coming to rest inverted. (CEN13FA183)

- The pilot and two passengers of a Cessna U206G were fatally injured and two passengers sustained serious injuries when the airplane collided with mountainous terrain. The pilot was transporting the passengers to a remote back country airstrip. As the airplane proceeded on the flight, ridgetops on both sides of the valley became obscured with an overcast cloud layer at 7,000 feet, and ragged clouds with mist were probably present beneath the overcast. Local pilots reported that in these types of weather conditions, numerous drainages can be similar in appearance. Radar data showed that the airplane was well short of the position reported by the pilot. Because of this, the pilot misidentified the drainage he intended to reach and instead turned into a drainage that ended in a box canyon. After impact, all communication, survival, and foul-weather gear aboard the airplane were destroyed in a postimpact fire. Although the pilot's logbook indicated that the pilot had 2,723 hours total flight time, it showed minimal back country or mountain flying experience. (SEA04GA192)

What can pilots and flight instructors do?

Through training, pilots can develop skills and techniques that will allow them to safely fly in mountainous terrain. When planning flights in mountainous terrain, pilots and flight instructors should do the following to enhance safety:

- Flight instructors should encourage their students to attend a quality mountain flying course before attempting flight in mountainous terrain or at high density altitudes.

- Pilots should consult with local flight instructors before planning a flight into mountainous terrain. Even experienced mountain pilots may not be familiar with local conditions and procedures for safe operations.

- Pilots should be aware that weather interacting with mountainous terrain can cause dangerous wind, severe turbulence, and other conditions that may be unsafe for aircraft, especially light GA aircraft.

- Pilots should consider specialized emergency and survival equipment (such as personal locator beacons in addition to a 406 emergency locator transmitter) before flying in mountainous terrain, and develop a plan for immediate access to the equipment in the event of a postaccident fire.

- FBO staff should be alert for customers who appear to be planning flight into mountainous terrain who could benefit from mountain flying instruction.

Interested in more information?

The reports for the accidents referenced in this safety alert are accessible by NTSB accident number from the Aviation Accident Database and Synopses web page at http://www.ntsb.gov/_layouts/ntsb.aviation/index.aspx. Each accident's public docket is accessible from the NTSB's Docket Management System web page at http://dms.ntsb.gov/pubdms/.

For an overview of mountain flying and techniques, the Federal Aviation Administration (FAA) published Tips on Mountain Flying (FAA-P-8740-60). Additionally, the May/June 2012

issue of FAASafety Briefing contains an article, Rocky Mountain High: The Zen of Mountain Flying that discusses both the beauty and dangers of mountain flying. The publications can be accessed from www.faa.gov.

Additionally, the Aircraft Owners and Pilots Association (AOPA) Air Safety Foundation provides a Mountain Flying safety advisor that highlights important considerations for mountain flying, A Pilot's Guide to Mountain Flying that discusses weather factors and mountain flying techniques, and the ASF - Mountain Flying resources web page that lists preferred routes over mountainous terrain in addition to other resources. AOPA also offers a Mountain Flying online course. These resources can be accessed from www.aopa.org.

The Colorado Pilots Association provides mountain flying resources to assist pilots when flying in Colorado. These include mountain pass locations and names, certified flight instructors, and available training. These can be accessed from http://coloradopilots.org/.

This NTSB safety alert and others can be accessed from the NTSB's Safety Alerts web page at http://www.ntsb.gov/safety/safety-alerts/Pages/default.aspx or searched from the NTSB home page at http://www.ntsb.gov/Pages/default.aspx.

FAA Safety BRIEFING

May/June 2012

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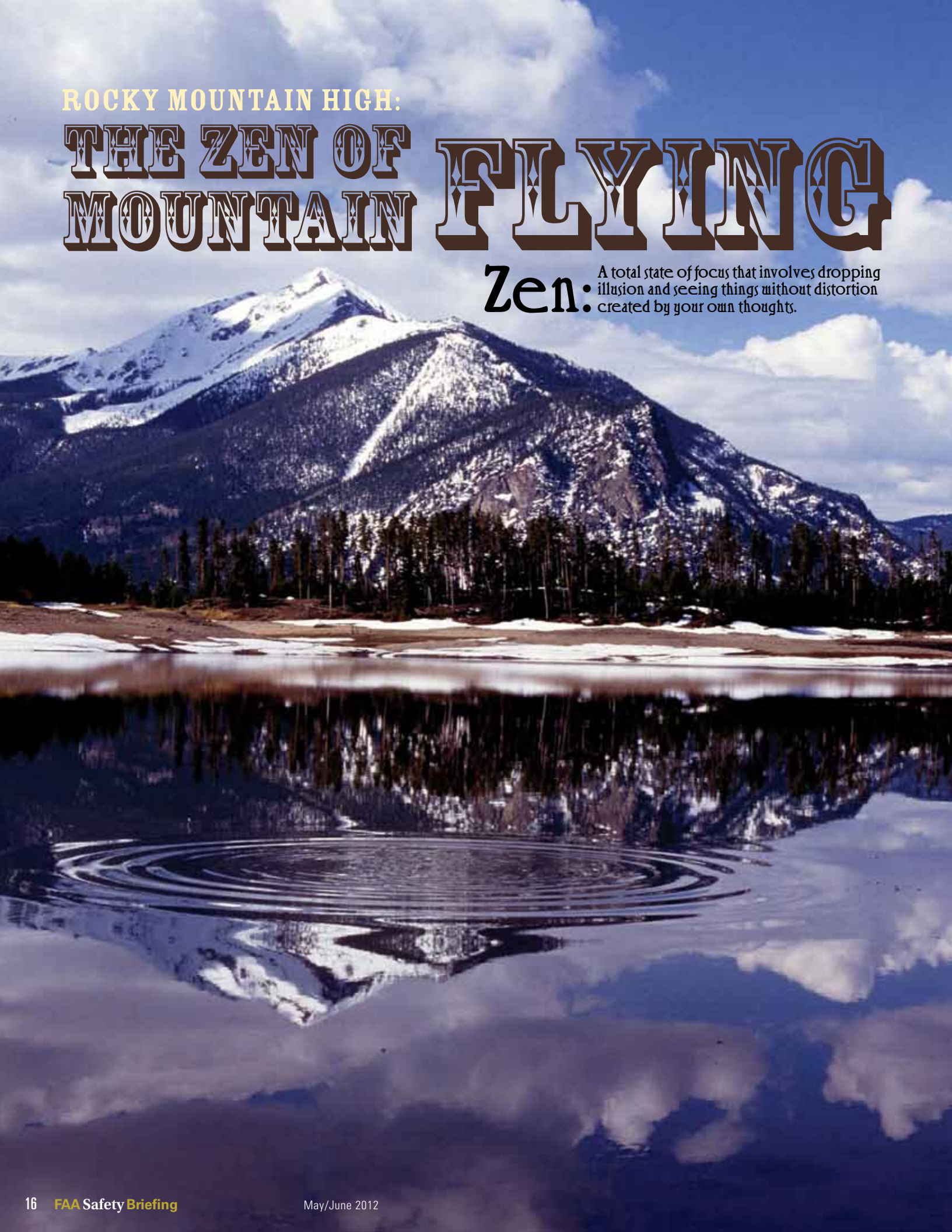


ROCKY MOUNTAIN HIGH:

THE ZEN OF MOUNTAIN FLYING

Zen: A total state of focus that involves dropping illusion and seeing things without distortion created by your own thoughts.

If perchance you have a yen to visit mountains in their own lofty neighborhood without the footwear and perspiration required to get there under your own steam, a GA airplane is a wonderful way to travel. I will never forget the thrill of flying over Arizona's famous Four Peaks mountain in my friends' Cessna T-206 *Stationair* a few springs ago. Being a regular on the DCA-PHX run, I had certainly seen it from the lofty heights of an airliner. But nothing compared to the closer view we got courtesy of general aviation.

There were no particularly difficult conditions on the day we flew in, but believe me, all three of us made a careful analysis of the weather before departing Santa Fe (KSAF) for Mesa (KFFZ). We weren't crossing the Rockies; still, we recognized that for pilots unaccustomed to operating at higher elevations, the flight environment can be very unforgiving of poor planning.

Knowing the Neighborhood

Let's start with a quick survey of hazards common to the mountain flying environment. Please note that "quick survey" carries a caveat: If you're serious about mountain flying, you need a lot more in-depth knowledge and understanding than we can provide in a short article.

Density altitude: As Jim Reynolds explains on p. 19, density altitude is the pressure altitude corrected for temperature. Since increasing temperature makes the air less dense, an airplane will perform as if it is at a higher altitude. The combination of high elevation and high temperature creates high density altitude, which has an adverse impact on aircraft performance.

Winds: Mountains create a wide-ranging menu of wind conditions. Mountain wave turbulence occurs when the wind speed is above about 25 knots and flowing perpendicular to the ridge lines. The air flow can form waves that are much like water flowing over rocks in a stream. The waves forming downwind from the ridge line are composed of strong up and down drafts, and there can also be dangerous rotor action under the crests of the waves. Mountain waves can be visible when enough moisture is present to create those beautiful and (very!) deceptively serene-looking lenticular clouds.

Another hazard is wind flowing through mountain passes. Remember the ground school discussion of carburetors? Just as the flow through a carburetor speeds up in the restriction of the throat, air moving through the narrow restriction of a mountain pass will accelerate and likely create turbulence and up- or down-drafts.

A third element of wind awareness for mountain flying is "orographic lifting," which is the term for what happens when the wind blows moist air upslope. If the temperatures are lower, the moist air will cool and form visible precipitation in the form of clouds. A cap cloud close to the mountain communicates stable air. However, with summer's unstable air, orographic lifting can easily launch the formation of thunderstorms.

Still another wind awareness item is the microburst. If you aren't familiar with mountain flying, you may not be familiar with the dry microburst, which occurs with little or no warning in the clear air beneath virga. Dry microbursts are common in and near the Rockies and other mountainous areas of the western United States during the summer. Dry microbursts are most likely to form around thunderstorms with bases above about 3,000 to 5,000 feet AGL and a temperature/dew point spread greater than 40 degrees. They can be indicated by blowing dust underneath a high-base thunderstorm … but of course you should stay well clear of thunderstorms in all circumstances.

Visibility: Temperature inversions often create fog in mountain valleys during the night. Valley fog can be very thick and, since it may require several hours to dissipate, it's definitely an item to factor into mountain area arrival and departure planning.

Acquiring the Zen

Presented in terms of the PAVE (pilot, aircraft, enVironment, external pressures) risk mitigation checklist, here are a few tips to start acquiring the distortion-free zen you need for safe mountain flying.

Pilot: Mountain flying will challenge your abilities to fly the airplane proficiently, navigate, and deal with weather. Take a clear-eyed look at your experience and background. Unless you learned to fly in such an area or have extensive mountain flying experience, safety demands that you consider taking a recognized mountain flying course to give

you the knowledge and skills you will need in this environment. The Internet provides information on the many courses available.

Aircraft: The mountain flying environment will also challenge your aircraft and, in circumstances like high density altitude combined with high elevation, conditions may demand greater performance than a GA aircraft can offer. Some experts recommend that 160 horsepower should be considered the absolute minimum for the airplane, especially when the pilot lacks significant mountain flying experience.

enVironment: Here's where the homework is critical. In addition to knowing what the pilot/aircraft team is capable of doing, you need to acquire a thorough understanding of not only the weather hazards described above, but also practical mitigation strategies. A few basic tips:

Altitudes: Plan to cross mountain passes at an altitude at least 1,000 feet above the pass elevation. This altitude could result in flying at or above 10,000 MSL, which means that you need to be sure you can meet VFR cloud clearance requirements if you are not on an IFR flight plan. Since the dearth of mountain weather reporting stations might complicate the task of fathering accurate information, be sure you have a viable escape route at all times. It's a good idea to call some of the airports along your route, and pilot reports can be as valuable as gold. Also, plan to cross ridges at a 45-degree angle. This technique allows you to turn away from the ridge more quickly if you encounter a severe downdraft or turbulence. After crossing a ridge, turn directly away from it at a 90-degree angle to depart the most likely area of turbulence.

Unless you learned to fly in the mountains or possess extensive mountain flying experience, safety demands that you consider taking a recognized mountain flying course to give you the knowledge and skills you need in this environment.

Visibility: Many experienced mountain pilots recommend having at least 15 miles of visibility before attempting mountain flights. Since your navigating will be primarily by pilotage and dead reckoning, good visibility will help keep you oriented in a sometimes confusing array of geographical cues. By the way, experienced mountain pilots generally caution against IFR and night flying in the mountains for novices. Instrument approaches and departure procedures often require a higher level of pilot skill and aircraft performance, and night obscures important visual navigation cues needed for terrain clearance.

Winds: Don't attempt to operate in mountainous terrain if the winds aloft forecast at mountain top levels is higher than 25 knots. During preflight, experts recommend that you pay close attention to forecasts at and above the mountain ridges. When flying in the west, that means checking the 9,000 and 12,000 foot forecasts. Also, the position of high and low pressure areas can offer clues to wind speed potential.

Routes: Flying in the mountains demands a lot more care than just drawing a straight line or following the magenta line on your GPS moving map navigator. The safer path in mountain areas is to follow features such as highways, river drainages, and valleys. In addition to being at a lower elevation, these routes offer better emergency landing options. Also, consider using pilot groups or Internet forums to find local pilots who have knowledge and experience to offer. And this point bears repeating: Always have a fly-able alternative!

Survival: The mountain flying environment can be very harsh, and survival equipment is a must. Do the research needed to assemble a good survival kit. At a minimum, you should have a three-day supply of food and water for each occupant, winter clothing, a medical kit, and signaling devices.

External factors: This one is easy to say, but very hard to do. As John Allen notes in his article on p. 1, elements of the pilot personality can sometimes cause us to attempt things we know we should not do. Take the time to ferret out the factors that might be pushing you into a poor position, whether in the go/no-go decision or deciding whether diversion is necessary once you are underway.

Done properly, mountain flying can significantly add to your repertoire of aviation skills and memorable adventures. Acquire the zen, and enjoy the view.

Susan Parson is a Special Assistant in the FAA's Flight Standards Service and editor of FAA Safety Briefing. She is an active general aviation pilot and flight instructor.

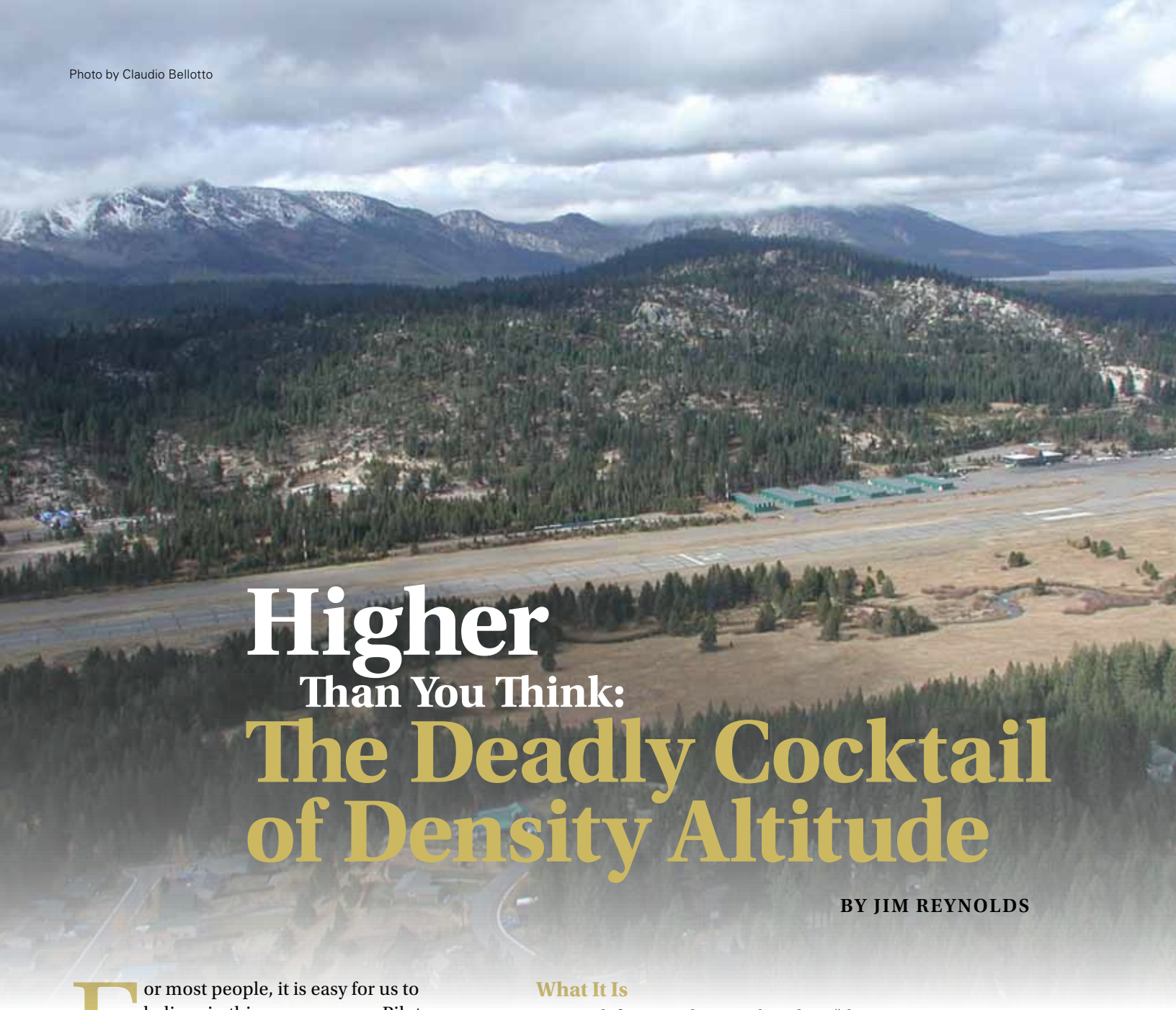


Photo by Claudio Bellotto

Higher Than You Think: The Deadly Cocktail of Density Altitude

BY JIM REYNOLDS

For most people, it is easy for us to believe in things we can see. Pilots are no exception. Just about any pilot can tell you in detail about the impacts that such visible weather phenomena as thick haze, a solid low ceiling, or a wall of rain under black thunderstorm clouds will have on a flight. But for many pilots, and especially those new to flying, it is often difficult to muster as much respect for the negative effects that density altitude can have on a flight because this condition is invisible to the eye. Density altitude can really be "seen" – or, more accurately, experienced – only through the performance of the aircraft. Unfortunately, by the time the pilot does perceive this condition through degradation in aircraft performance, the adverse consequences of density altitude have already appeared. And they can be deadly.

What It Is

By definition, density altitude is "the pressure altitude adjusted for non-standard temperature." Simply put, increasing temperature at a particular atmospheric pressure causes the density of air at that pressure to appear as though it resides at a higher physical altitude.

The problem of density altitude for pilots begins with the fact that aircraft fly through an atmosphere of air that is composed of invisible gases. Only when there is an excess of particulate matter or water vapor in the air can anything actually be seen in the flight environment. Because air is otherwise invisible, it is not possible to see that air becomes thinner due to the increased spacing between air molecules when an air mass is raised in elevation (high), when it is warmed (hot), or when water vapor is added to it (humid).

Photo by H. Dean Chamberlain

What It Does

Whether due to height, heat, or humidity, the increased spacing between air molecules and the resulting thinner air, has the following three effects on aircraft performance:

- Aircraft accelerate more slowly on takeoff or go-around because the thinner air adversely affects combustion, and thus results in a power production reduction.
- To produce the same lift associated with a lower density altitude condition, aircraft need a higher true airspeed, which generally requires a longer takeoff roll to achieve.
- The reduction in both power production and lift means that aircraft climb more slowly.

Any mix of high, hot, or humid atmospheric conditions creates what we call "high density altitude" situations. Density altitude can be quite dangerous, especially if the aircraft is operating at, or close to, its maximum gross weight.

How to Spot It

Though it is inevitable that a pilot will be unable to literally see developing high density altitude situations, there are a number of other cues to its existence. First, it is easy to get a general sense of the temperature just by noting what we experience when we step outside. Similarly, we are very likely to sense an increase of humidity, or "mugginess," in our surroundings, and we can observe the hazy conditions that sometimes accompany the hot and humid characteristics of density altitude.

At higher elevations, we might also have clues from the physiological impact of altitude. For instance, we find ourselves catching our breath when undertaking physical tasks that don't usually cause us to breathe deeply. However, these physical signs are not enough for pilots to gain a true understanding of how their aircraft will perform under their given current conditions. The only way to truly ascertain how an aircraft will perform is to first compute density altitude according to a chart or a calculator, and then correlate this information with aircraft performance data in the aircraft's operating handbook. If you don't have a physical copy of a density altitude chart in an aviation book of some sort, these charts can easily be found on the Internet by doing a search for a "density altitude computation chart" (Fig. 1).

An even easier way to determine density altitude is to use an online calculator. The National Weather Service office in El Paso, Texas, has a handy calculator that can be found at: www.srh.noaa.gov/epz/?n=wxcalc_densityaltitude.

While most density altitude effects are experienced at higher elevations, it is important to note that extremely high temperatures at lower elevations can lead to equally negative aircraft performance problems. Case in point: high

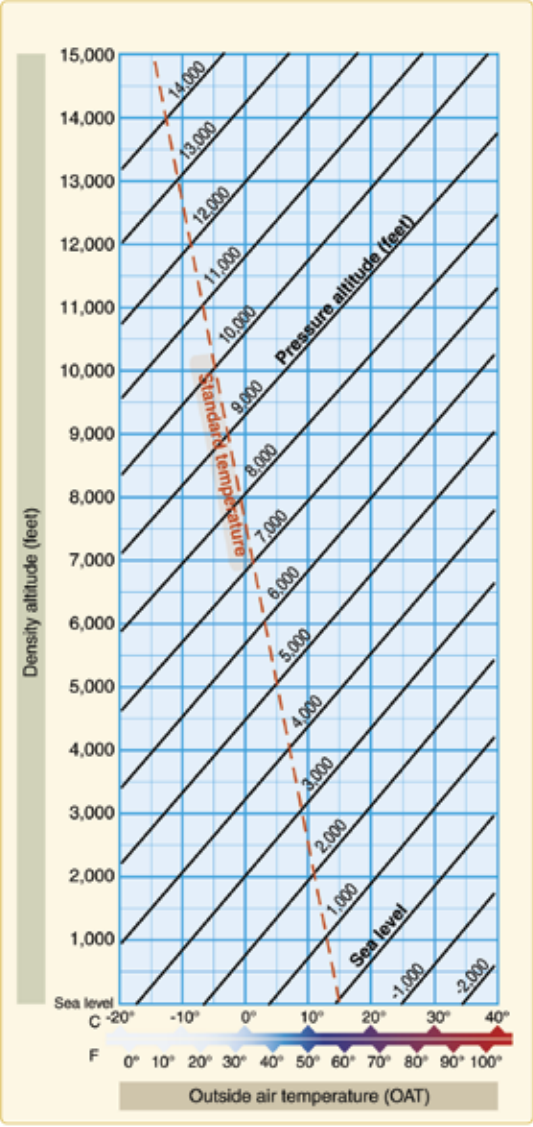


Fig. 1 – Density Altitude Computation Chart

temperatures across portions of the U. S. desert southwest can easily exceed 115 F throughout the summer months. Chris Kesler, Operations Support Manager for the Terminal Radar Control facility at the Phoenix Sky Harbor Airport observes that "while high density altitude situations do not officially cause the closure of the airport, a temperature of 120 F will generally cause most pilots to choose not to fly into or out of the airport until temperatures cool down." The fact that the elevation of Phoenix Sky Harbor Airport is only 1,124 feet above sea level provides a good indication of just how severe the impact of high temperatures can be on density altitude.

What To Do

While the effects of density altitude can be insidious, there are ways to beat this foe. Here are a few tactics and techniques.

If at all possible, fly early or late in the day when it is typically cooler. Any reduction in temperature may add some flexibility with regards to your functional elevation – i.e., the altitude the airplane "feels" when it flies.

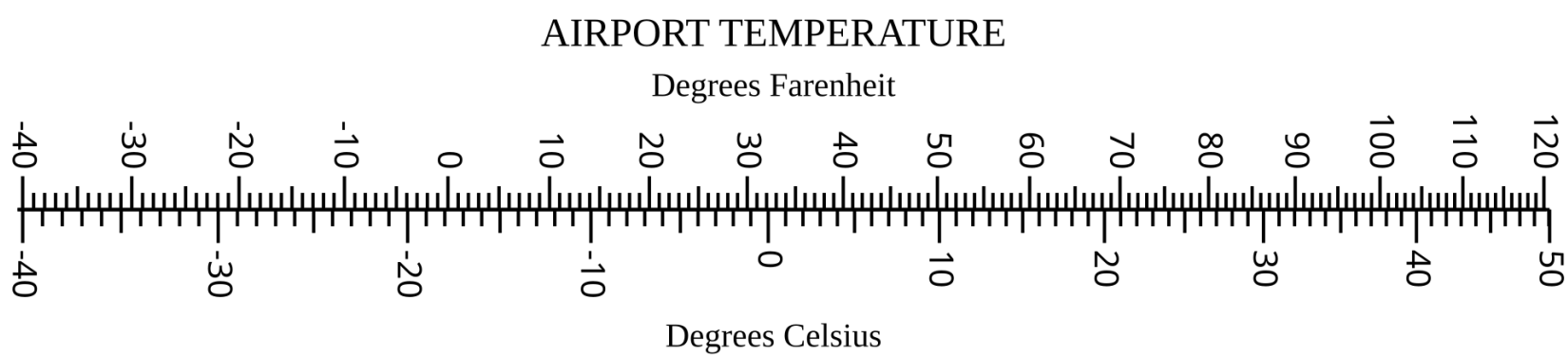
Fly as light as possible. Leave behind all of the baggage you don't really need. Ask yourself - will you actually play golf with the clubs you're planning to bring? Lastly, bring along only those passengers that are necessary for the trip. High density altitude situations are bad ones for those individuals that just want to "tag along."

Know before you go - take the time to calculate aircraft performance. If the conditions are beyond the aircraft's performance envelope, you want to discover that fact before you launch, not while you're struggling to launch and climb.

In short, don't let the cocktail of "hot, high and heavy" be hazardous to your health!

Photo by James Williams

Jim Reynolds is the Meteorologist in Charge at the Center Weather Service Unit in Albuquerque, NM. He has been a private pilot since 1992.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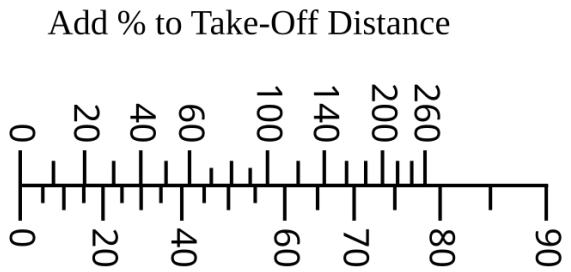
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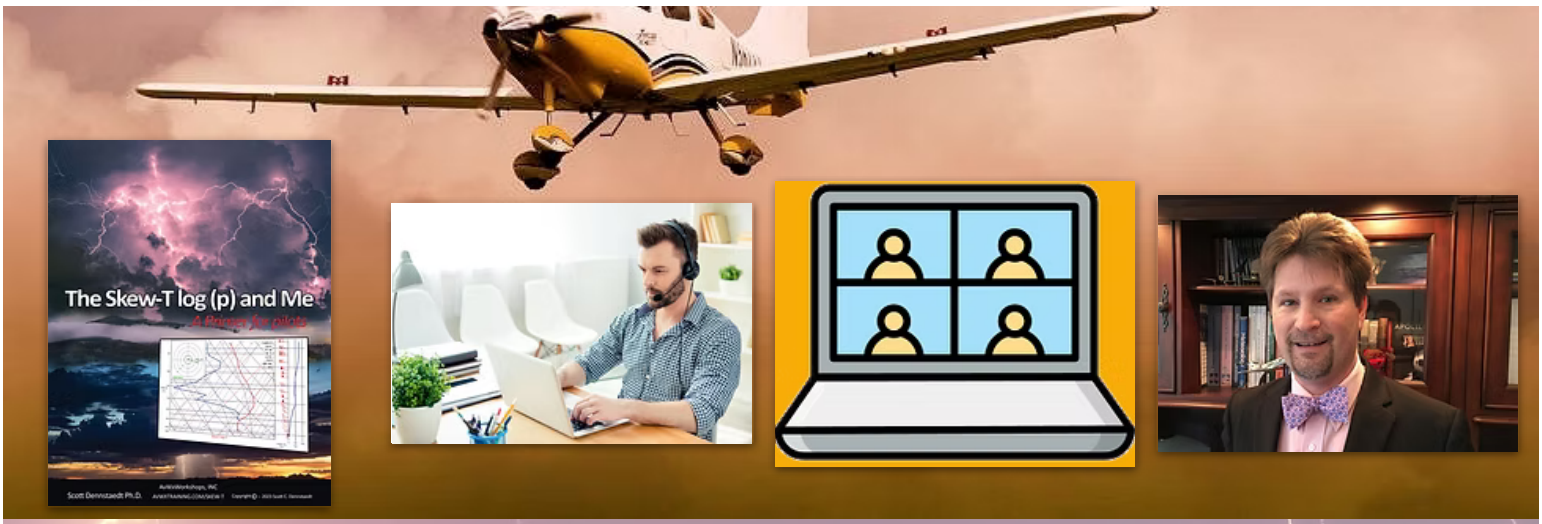

Softcover & eBooks

Dr. Scott Dennstaedt is the author of Weather Essentials for Pilots: The Skew-T Edition, The Skew-T log (p) and Me: A Primer for Pilots and co-author of Pilot Weather: From Solo to the Airlines. They are sold in both a softcover and eBook format.

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More Info

Meet the CFI

Dr. Scott Dennstaedt is an experienced FAA-certificated instrument flight instructor (CFI) and former NWS meteorologist. He is the author of The Skew-T log (p) and Me and co-author of Pilot Weather: From Solo to the Airlines. Scott has written over 400 articles for various aviation magazines and is a contributing editor of *FLYING* magazine. He's always had a love for weather & aviation since childhood and is now enjoying his true vocation of teaching.

About AvWxTraining

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About Us

McCall Mountain Canyon Flying Seminars LLC is located at the McCall Municipal Airport (KMYL) in McCall, Idaho. This is the ideal launching point for flight training and to experience excursions into the Idaho Backcountry. The

Frank Church River of No Return Wilderness, the Selway Bitter Root Wilderness, together with Hells Canyon is made up of over 4.5 million acres and holds 4 of the 5 deepest canyons in North America with approximately 60 off-pavement airstrips in and around this region. As an aviator and backcountry enthusiast, this means confined area, high-density altitude operations and endless ridges with a vast river network, providing outstanding, beautiful, and challenging backcountry flying and offering a variety of recreational opportunities.

McCall Mountain/Canyon Flying Seminars LLC, established in 1997, is an internationally recognized company that conducts flight and ground training for primary and advanced pilots; providing the skills and knowledge needed to operate safely in the unique environment of the mountain and canyons, involving off pavement landings.

This schools' advanced aviation safety seminars address density altitude effects of the mountains and the confined operations of the canyons, focusing on knowing your aircraft, environment and yourself. Stick and Rudder skills are also implemented throughout these courses.

Our CFI's collectively have over 140 years and 75,000 + hours of commercial flying experience, including an estimated 20,000 hours flying as charter pilots, United States Forest Service pilots, and flight instructors in the Idaho backcountry.

Students will not only get expert flight instruction from Lori and her other experienced instructors, they will also learn to appreciate the role that aviation plays in opening the backcountry to backpackers and sportsmen, as a means of transportation and as an unequalled resource in emergencies such as SAR (search and rescue) and fire fighting activities. In addition to her own courses, Lori conducts aviation-safety seminars for general-aviation pilots and many advanced specialty groups, such as US Border Patrol, US Forest Service, Fish and Game, Military and on demand air carriers. With the guidance of Lori and the help of her instructors, McCall Mountain Canyon Flying has developed into the most prominent backcountry flight school in the nation. Their instructors are some of the most recognized backcountry pilots in Idaho and Utah. The rich variety of backgrounds of each instructor (see "Instructor Bio's) has lead to a flight school that can accommodate various training missions in airplanes from Cessna 150's to twin-engine turbo props and everything in between. Most importantly, it is done safely and effectively, which is the underlying goal behind everything McCall Mountain and Canyon Flying strives for.

If you plan to fly in mountain and canyon areas, you should seek instruction from a qualified and experienced certified flight instructor who is familiar with the areas in which you wish to fly.

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Garmin GPS175 GNC355 GNX375

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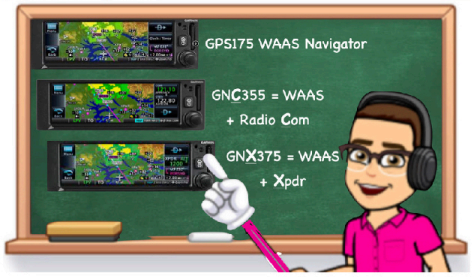
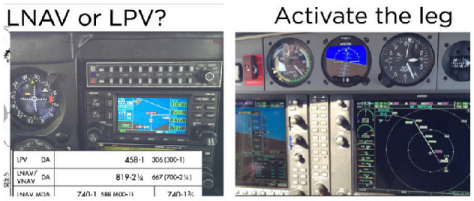


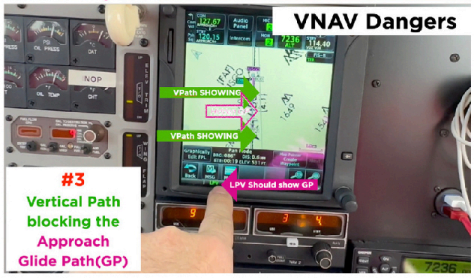
Garmin G430/530, G1000/2000

Online Video Training for Pilots



Garmin GTN 650/750/xi

Online Video Training for Pilots

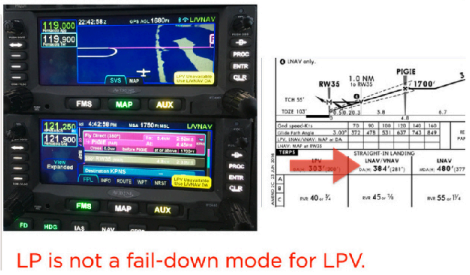


Single Pilot IFR Real-World Pro Tips

Online Video Mastery Training for Pilots

Avidyne IFD 440/540/550

Online Video Training for Pilots



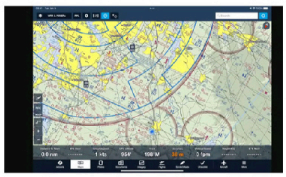
LP is not a fail-down mode for LPV.

ForeFlight IFR Real-World

Online Video Mastery Training for Pilots

- Use search box
- *Start* GPS D
- Route History only
- Always use SID/ STAR
- **Never file GPS D**

XC Planning
KLUD - KOLV



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