



Fundamentals of BackCountry (Bush) Flying

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Introduction

This document provides virtual pilots with basic real life fundamentals of backcountry (bush) and mountain flying. Information in this manual is gathered from a number of real life flying publications, some real life observations, and a number experiences as a real life pilot. This guide, while based on these sources, is not intended to be used in any manner as reference material for flying in real life. I am not your flight instructor, nor is any staff member of The Alaskan Bush Company (TABC) a flight instructor. This material is provided as guidance for **flight simulator pilots only**, flying in the virtual Alaskan backcountry. This document is revised on a regular basis as new developments, changes, additions, or removals arise as needed.

This handbook should be read by all TABC pilots wishing to enhance their level of immersion. Many of the items in this guide will be heard and repeated by many of our pilots while online. For new pilots recently hired by TABC, this handbook provides a wealth of information that will help you acclimate quickly, and make your stay with TABC more enjoyable. Refer to this document if you have any questions about backcountry flying, or post a question on the TABC Discord.

Welcome to The Alaskan Bush Company

The Alaskan Bush Company (TABC) is a fictional company utilizing OnAir and Microsoft Flight Simulator 2020 to run a virtual airline. Our Mission at TABC is to simulate the bush flying in the State of Alaska. TABC is something entirely different from the rest of the virtual airlines within our community. Where other VA's simply "start operations" with aircraft and routes established, TABC's primary focus is not flying established airline routes but operating in a variety of capacities in remote areas, landing on anything from a nice paved runway, to a dirt road in the middle of nowhere, and flying everything from cargo, to passengers and sightseeing missions. The staff members at TABC are committed to your enjoyment of the bush flying experience, and we will strive to provide you with the type of environment you expect. We have multiple members who have the knowledge and background of real life flying. At TABC you can explore the Alaskan bush pilot lifestyle from the comfort and warmth of your own home.

At TABC we follow some very simple CORE (Collaborate, Openness, Respect, Empowerment) values to allow all our members to enjoy their experience and time with us. This means that no matter the level of someone's knowledge, we can all learn from each other, we take responsibility for our actions. Respect your fellow members, and they'll respect you. Where possible we strive to bring out the best in each other. ABC is what you make it, you can make your flying as professional as you can, from flight planning, fuel planning, online environment with ATC or you can fly offline and take it easy, but remember this is a hobby, a place where members come to enjoy themselves. We have one rule: Have Fun! Welcome to The Alaskan Bush Company. A group driven by expertise and passion. A group we hope you enjoy and grow with.

Capt. Seppi and Staff

Six Backcountry Flying Tips

Flying in Alaska is different. The weather, terrain, extreme temperatures, 24 hour periods of daylight or darkness, vast areas without radar or radio coverage, rough and rugged airstrips, all make flying in Alaska a challenge. Flying in Alaska requires that you spend some time thinking about a few things ahead of time. So we put a few tips together for you to help.

Tip 1 - Stay out of the middle.

The most important thing to remember about any kind of mountain flying is to stay out of the middle. A common solution to many aviation perils is the decision and ability to turn around.

Turning the airplane is one of the first lessons in flight. Steep turns with little or no loss of altitude are taught from the beginning. If we can prevent pilots from flying into worsening visibilities and weather we could reduce accidents by approximately half. Practically speaking, this means two things: 1) making the decision to turn around and, 2) doing it while you maintain control of the flight situation.

In the mountains, a one hundred eighty degree turn is not so much a maneuver as it is strategy.

Probably the most important rule in mountain flying is being in a position to turn around at all times. The importance of staying out of the middle of a canyon should be obvious. You must accept the simple fact that flying on one side or the other will give all the available space for your turn strategy. The golden rule is "stay out of the middle." If you break the golden rule when you're in such a tight spot that you can't turn around with complete safety, you're in deep trouble.

How much space do you need to turn your airplane around? The term radius is commonly used when referring to the actual distance that you will require to get around. Radius is a function of speed. The faster you are traveling over the ground the more space you will need to turn around. So slow down, and see Tip #2

Tip 2. Slow down to Canyon Speed.

"Canyon Speed" is a configuration that is also used in the airport environment. This could be defined as 2-5 miles away from your destination airstrip or entering the pattern. It is a configuration in which the aircraft is very stable. Once you get the grasp of it, you may find

yourself using this configuration in other phases of flight operations while operating below the rim and in confined areas.

To obtain "Canyon Speed" we recommend that you slow down to a safe flap operation speed and use one or two notches of flaps, adjust the power to maintain level flight attitude, and trim for level flight attitude. For example: reduce power to slow down, put on two notches of flaps, reduce power more and trim for level flight attitude and check speed. Speed should normally be about 10kts higher than VS1, but adjust for conditions. For a definition of the V speeds, see the V Speed section of this guide. WOW you just greatly reduced your turn radius, see Tip #1.

Tip 3 - Go-arounds gone wrong

The go-around gone wrong is a go-around which results in a collision with terrain. This is the most common and most deadly mistake made in the backcountry.

Go-around is not a term that is widely used in the backcountry as it is typically not a safe option. A key item that is taught in a go-around procedure is to increase power and maintain the runway heading, then follow the published go-around procedure. The better option is to have an **abort point**. The way you build an abort point is similar to the way an approach plate is laid out for instrument pilots. The abort point is an imaginary point that may be 300 feet off the ground, or 100 feet off the ground, and that altitude is your minimum point that you will descend to when determining if you can make the landing. If you are at your abort point and you determine you can hit your **aiming point** then you commit to your landing. If you are not going to hit your aiming point you abort, immediately going to the left or right to avoid terrain.

Aiming point is the specific point on the ground you want to touch down. Once you commit to your aiming point, do not change it. If you are not going to make it by your abort point, well, then abort and try it again.

Tip 4 - Flying at the right altitude - never lose sight of the ground

Don't fly at round number altitudes such as 1000 or 1500 feet. That is where everyone else flies. It is better to fly at 700 feet, or 1300 feet or another random altitude that pilots are not habitually drawn to. Most real life flying in Alaska is conducted under VFR rules, and under 3000 feet above ground level (AGL). IFR in the context of flying in Alaska means "I Follow Rivers" There are very few roads or railroads, if any at all in the backcountry. There are also very few cell towers, weather stations, or other man made obstacles. Also, when flying low, it is sometimes better to fly really low, with the primary benefit being you avoid the cloud bases and remain in areas of better visibility.

While real Alaskan bush pilots will likely have instrument ratings, and aircraft are IFR equipped, they will seldom fly in or above the clouds. They are all taught to maintain visual contact with the ground at all times, and to follow rivers when possible, over the lowest terrain possible.

Almost all the airspace in Alaska is Class G, which requires just 1 mile of visibility while remaining clear of the clouds.

Also keep in mind, when flying at or under 3000 feet AGL, you are not required to fly at any particular altitude. Designated Cruising Altitudes, such as the odd/even plus 500 foot (VFR flight rules) only apply when you are cruising above 3000 feet AGL.

Tip 5 - Cooperate with other pilots

Even real life bush pilots in Alaska cooperate with each other, even if they work for competing employers. We recommend you participate in the UNICOM channel when flying, and share information, weather, airport, and terrain data. Sharing knowledge is how others learn, and in turn makes us all better pilots.

Last Tip - There is more to being a bush pilot than skillful flying

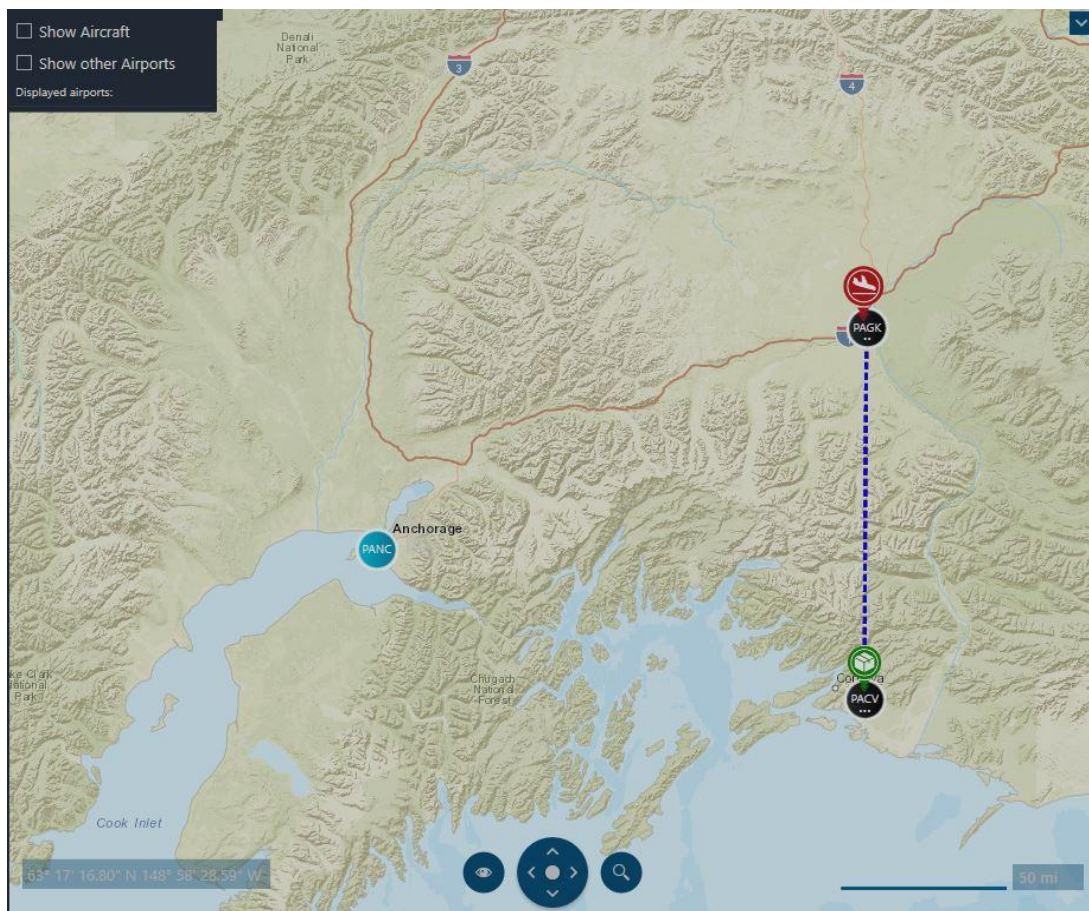
Those bush pilots that have the most success and fun have gathered a working knowledge of local weather patterns, wind behavior around mountains, and grasp the importance of topographical features such as river drainages (lower ground). Flying in Alaska is no more dangerous than flying in the lower 48. All it requires is a little bit of judgment and common sense. Be prepared, learn the area, and enjoy the wonder and fun that is only available to those who fly into the wild.

Example Flight Plan(s)

Certainly, this is a recommendation and not a requirement for those looking for full immersion and a more realistic experience. Next time you fly, consider a short review of a sectional chart and perhaps consider choosing an alternative route based on what you learn here.

PAVC -> PAGK

In this example we will review a job hauling cargo from PACV to PAGK. The route is 142nm straight line distance on a course of 63 degrees as presented in OnAir, (100nm on SkyVector).



Review SkyVector, the direct line route would require an immediate climb to an altitude of 9500 (if you were flying VFR, odd altitude, plus 500) in order for you to clear the mountain obstructions. Plus, flying directly over larger mountains is very bumpy and a ride at only 1000 feet above the terrain is going to be very, very dangerous.



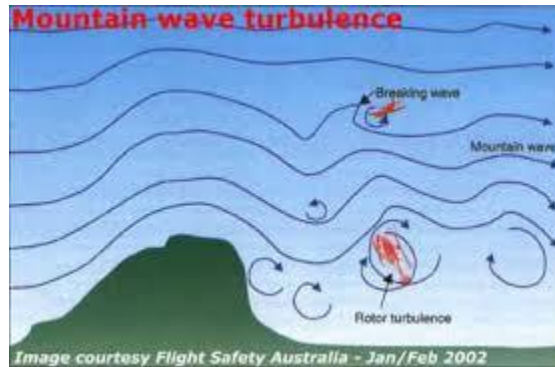
Mountain wave turbulence is the culprit—essentially it's high-speed winds passing over the mountains that create waves of violent powerful air, which can toss an airplane around like a toy. You will encounter mountain wave turbulence in MSFS2020. The United States Federal Aviation Association (FAA) describes the [occurrence of mountain waves](#) like this:

“When the wind speed is above about 25 knots and flowing perpendicular to the ridgelines, the airflow can form waves, much like water flowing over rocks in a stream bed. The waves form downwind from the ridgeline and will be composed of very strong up and downdrafts, plus dangerous rotor action under the crests of the waves. “

Mountain wave turbulence can be unpredictable, popping up in seemingly smooth air and causing sudden changes to flight conditions, just like rough waters will rock a boat on the ocean.

The diagram (below) from the National Weather Service gives a simple visual of the mountain waves and what happens to an airplane as it navigates through them. Pilots rely on pre-flight

reports and the reports of other pilots to be aware of mountain waves on their route. The presence of these waves can, sometimes, be seen if there is enough moisture in the air to form lenticular clouds.

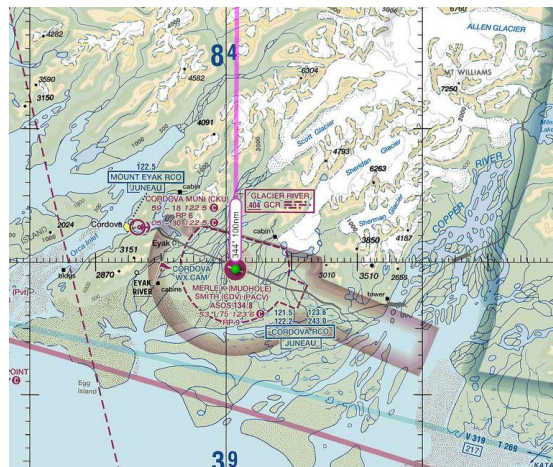


Courtesy of weather.gov.

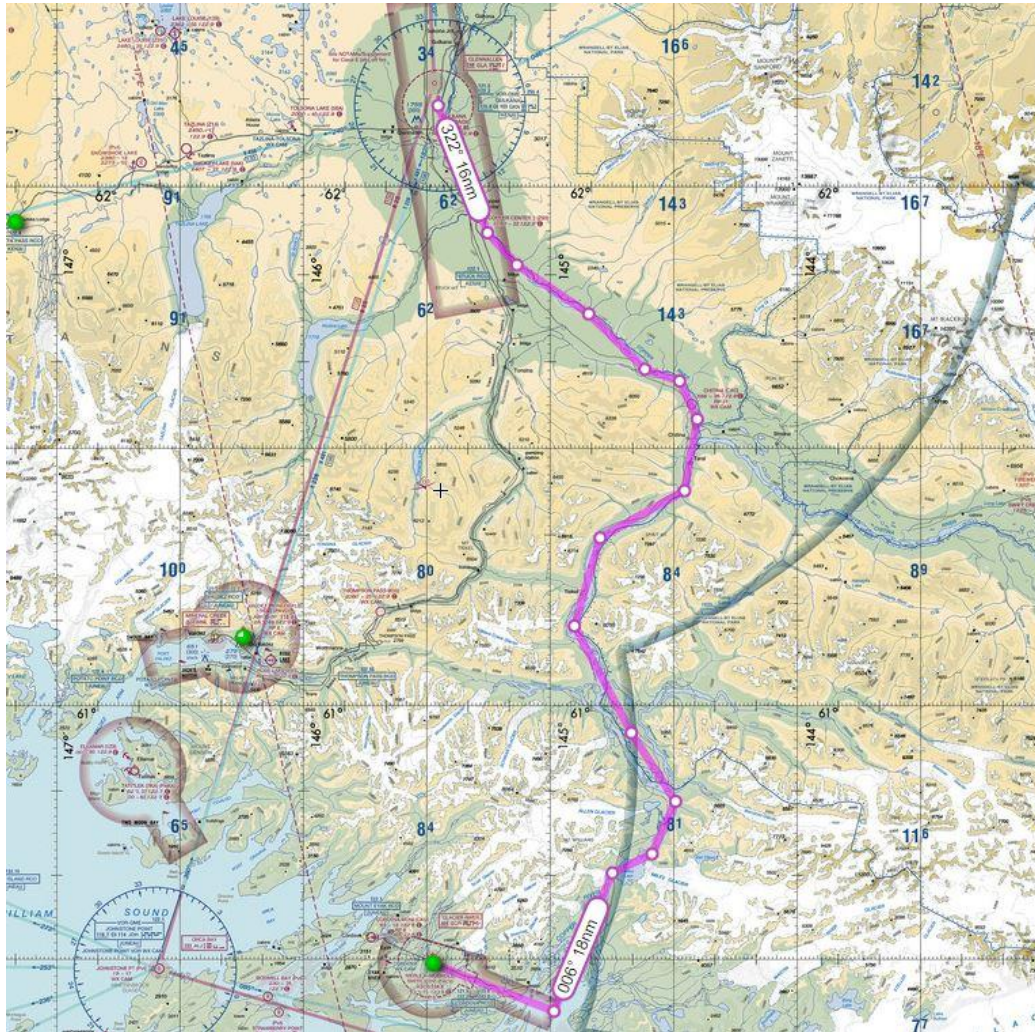
In addition to mountain waves, microbursts can occur, which have been known to cause serious injury to passengers and damage to the aircraft. Microbursts are localized columns of sinking air that cause a downdraft and can be wet, meaning they occur in the middle of an active thunderstorm or severe rain shower. Dry microbursts—which occur without a storm—are also common in and near mountains.

The alternative is that you fly higher, however, you need to consider that most of the flying in Alaska is within visual sight of the ground below 3000' above ground level (AGL). This poses a dangerous situation.

Remembering that IFR in Alaska means "I Follow Rivers", and reviewing the VFR Sectional on SkyVector we should look for roads or rivers that can help us. Immediately we see the rather large Copper River just to the East of our departure airport, PACV. Looking closer at the area you can see that there is very little obstruction on the departure (you avoid mountains).



After some close evaluation you can determine that: A planned flight from PACV, departing to the east towards the Copper River, and then following the Copper River north to PAGK would be the best option. The new route would resemble the route shown below.



Following the river does add 48nm of distance to the trip, but you need to consider the time to climb in the previous scenario. The time (and fuel consumption) you would add to climb to an altitude required to clear the mountainous obstructions for north departure, would be washed out in the added distance of following the river, not to mention the ride is going to be smooth, and you will have more options should you require an emergency landing.