

SURVIVING THE SEASON

Best Practices for Winter Weather Readiness

By Nicole Hartman



Like many, my family and I enjoy watching wilderness survival shows, like the History Channel's *Alone*. We find it entertaining and comforting, in a strange way, to witness thrilling survival experiences in brutal environments from the luxury of our cozy couch. We can't help but envision how we would act if put in that same situation. Would we be prepared? Could we survive? Our guilty pleasure has us considering these hypothetical questions, but any pilot who flies in extreme winter weather should consider them seriously.

With fewer planes in the sky and the potential for better visibility and boosted aircraft performance, the winter season presents supreme conditions for flying — if you're properly prepared. Here are some vital areas to plan for if you're thinking of flying this winter.

Frigid Fitness

Any survival expert will agree that physical and mental well-being are imperative for a successful expedition. As a pilot flying in the winter, it's important to understand the effects that colder weather can have on your body and mind. Cold stress, caused by exposure to extreme cold and windchill, can impair basic motor functions and have serious consequences.

Pilots are susceptible to cold stress before, during, and after flight. This occurs whenever skin temperature starts to drop, followed by internal body temperature. When your temperature drops below 98.6 degrees F, blood flow to your extremities is restricted to preserve heat in your core. We're all accustomed to chattering teeth and shivering, but as your body is unable to warm itself, fatigue and confusion or disorientation can also set in. Prolonged exposure can lead to serious cold-related conditions including hypothermia, which affects the ability to think clearly and move easily, and frostbite, which damages deeper tissue and can lead to tissue death.



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None of these symptoms are conducive for a safe and pleasant flying experience, so what can you do to keep Jack Frost from nipping at your nose?

- ❄️ **Layer:** There is no single magic garment able to adapt to the environmental variables of winter. Wear a breathable, wind/water-resistant outer layer, an insulating middle layer, and a breathable, moisture-wicking base layer to provide the protective barriers needed to combat cold. Protect extremities with thermal headwear and gloves. Supplement with warming packs for feet, hands, and liners.
- ❄️ **Footwear:** Tennis shoes are fine for pre-flight in a warm hangar, but make sure your footwear is appropriate for the weather before pulling the aircraft outside and taking off. Consider wearing boots with a moisture-wicking lining to help stay dry and a slip-resistant sole for added safety.
- ❄️ **Hydrate:** Dehydration in cold environments is a major risk especially since lower temperatures suppress thirst (the body is focused on regulating core temperature more than fluid balance).
- ❄️ **Eat:** Eating a healthy meal before flight is important for your physical and mental wellbeing. Eating also keeps your metabolism up which helps you retain heat.
- ❄️ **Rest:** Make sure you're well-rested before flying. Your body needs energy to maintain its core temperature. Additionally, exhaustion and fatigue can exacerbate an already stressful situation.
- ❄️ **Limit Direct Exposure:** The less time you're exposed to the elements, the less likely you are to be severely impacted by them.



Make a List. Check it Twice.

Now that you're properly bundled, you need to make sure your aircraft is ready to face the elements. In the winter, your preflight checklist is especially crucial and should be scrutinized with even more care than Santa double-checking his naughty list. Inspect your aircraft as though an examiner is observing you: check tire pressure (which tends to drop in cold weather), perform any needed snow/ice removal, and inspect the engine cowling for any debris or small animals looking for a place to stay warm.

Pay special attention to the aircraft openings where snow can enter, freeze solid, and obstruct operation, especially if an aircraft is parked in an area of blowing snow. These openings should be free of snow and ice before flight. Inspect pitot tubes, heater intakes, carburetor intakes, anti-torque and elevator controls, and main wheel and tail wheel wells where snow can freeze around elevator and rudder controls.



Be sure to inspect your fuel vent before takeoff. A vent plugged by ice or snow can cause the engine to stop, the tank to collapse, and potentially other serious damages. Additionally, always double-check your anti- and de-icing equipment.

It's crucial to warm up your aircraft cabin and engine in cold weather, especially if it's not being stored in a hangar. Watch for potential fire hazards due to faulty heaters and/or cords and do not leave your airplane unattended during the preheating process. Be careful that the heat ducting is not blowing on flammable parts of the airplane such as upholstery, canvas engine covers, and flexible fuel, oil, and hydraulic lines. Ensure you always have a fire extinguisher at the ready during the preheating process. Be aware that if your aircraft is stored in a hangar, frost may develop on it once it is brought out into the cold. Keep an eye out for this and be prepared to remove as necessary.

Precipitation Preparation

Proper flight planning is always important; however, it is particularly crucial when flying in winter weather. With the possibility of sudden weather changes, pilots must have a detailed understanding of weather conditions and forecasts along their flight route. Simply put — winter preflight planning should take longer than prepping to fly in warmer weather. Keep this in mind as the tendency to rush to avoid becoming cold could result in missing a critical item.

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The cold air of winter often provides increased visibility, letting you see everything more clearly from further away. However, snow and ice can create hazardous conditions, so knowing the fastest or safest escape route is a critical part of

the flight planning process. Be sure to utilize the numerous weather tools available to inform go/no-go decisions. Pay attention to the weather patterns most common in your local area and assess the trends for your destination several days ahead of time if you're flying cross-country.

Flight planning should include your destination as well as some contingency routes in case you encounter unexpected weather and need to change course. Mid-air, mid-ice storm is not the time to come up with a "plan B." The more you understand how the weather acts within your common flying zones, the better prepared you'll be for any issues that arise during flight.

Equip for Elements

Winter flying is not like competing on a reality survival show, with an entire production team waiting in the wings in case something goes wrong. When you're waiting for aid in an unheated airplane on a cold, snowy night, you'll be wishing you had the option to "tap out" and be rushed off to safety and warmth.

Even the most cautious pilots experience emergencies, so always pack necessary survival equipment, including extra winter clothing, a fully charged phone, a flashlight with new batteries, high-energy food (like protein bars and



nuts), and water. Additionally, consider equipping your plane with some survival gear for the worst-case scenario. Some states (like Alaska) require specific equipment to be carried on board, by law, applicable to the time of year. Be sure to check your local area before flying.

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Your basic survival kit should consist of the 6 C's of survival.

- ✦ **Cutting Tool:** A knife is a versatile, indispensable addition to any survival kit. A small and useful tool, a knife can be used for processing wood and as a flint and steel striker for fire.
- ✦ **Fire Starting (Combustion) Device:** This can include stormproof matches, a simple lighter, or a ferro rod.
- ✦ **Cover:** A lightweight, compact, and multi-purpose tarp, drop cloth, emergency blanket, or even a heavy-duty plastic trash bag. This cover can be used as a wind-breaker, sleeping bag, or ground covering. It can also be used to catch rain/snow for drinking water or to signal for rescue if it's reflective or brightly colored.
- ✦ **Container:** An uncoated metal container can be used directly over a flame to purify water or to create a hot water bottle to aid in keeping you warm.
- ✦ **Cordage:** A 7-strand paracord is very helpful for many things and very difficult to replicate in the wilderness.

- ✦ **Communication:** A satellite phone, InReach, or Spot device. Having the ability to communicate your exact location via satellite when not in cell coverage significantly reduces the time necessary to facilitate a rescue.

Cold, Hard Facts

With so many variables to consider, from abrupt changes in weather to equipment maintenance, many general aviation pilots may decide to skip the wintertime adventure for something more mild (and warm), like binge-watching the latest season of *Survivor*. However, with the right preparation and precautions, wintertime can truly be a wonderland, offering some of the best air for flying. ➤

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Winter Flying Tips
bit.ly/3L75RkB

From *The Flight Deck* – Winter Weather Challenges
bit.ly/3FdXq3G

Chilled to the Bone, *FAA Safety Briefing*, Nov/Dec 2014, Page 14
bit.ly/3Plngmg

Keeping Your Cool in the Cold, *FAA Safety Briefing*, Nov/Dec 2014, Page 18
bit.ly/3Plngmg

Alaska Statute for Survival Gear
bit.ly/48pPtFB

Did you miss the FAA's GA Pilot Winter Prep Workshop event in October? Use the QR code to view the presentation. It covers important safety tips for pilots to follow when operating in winter weather and how to operate safely in changing weather conditions.

[WATCH THE EVENT](#)