



WEATHER PLANNING FOR REMOTE LOCATIONS

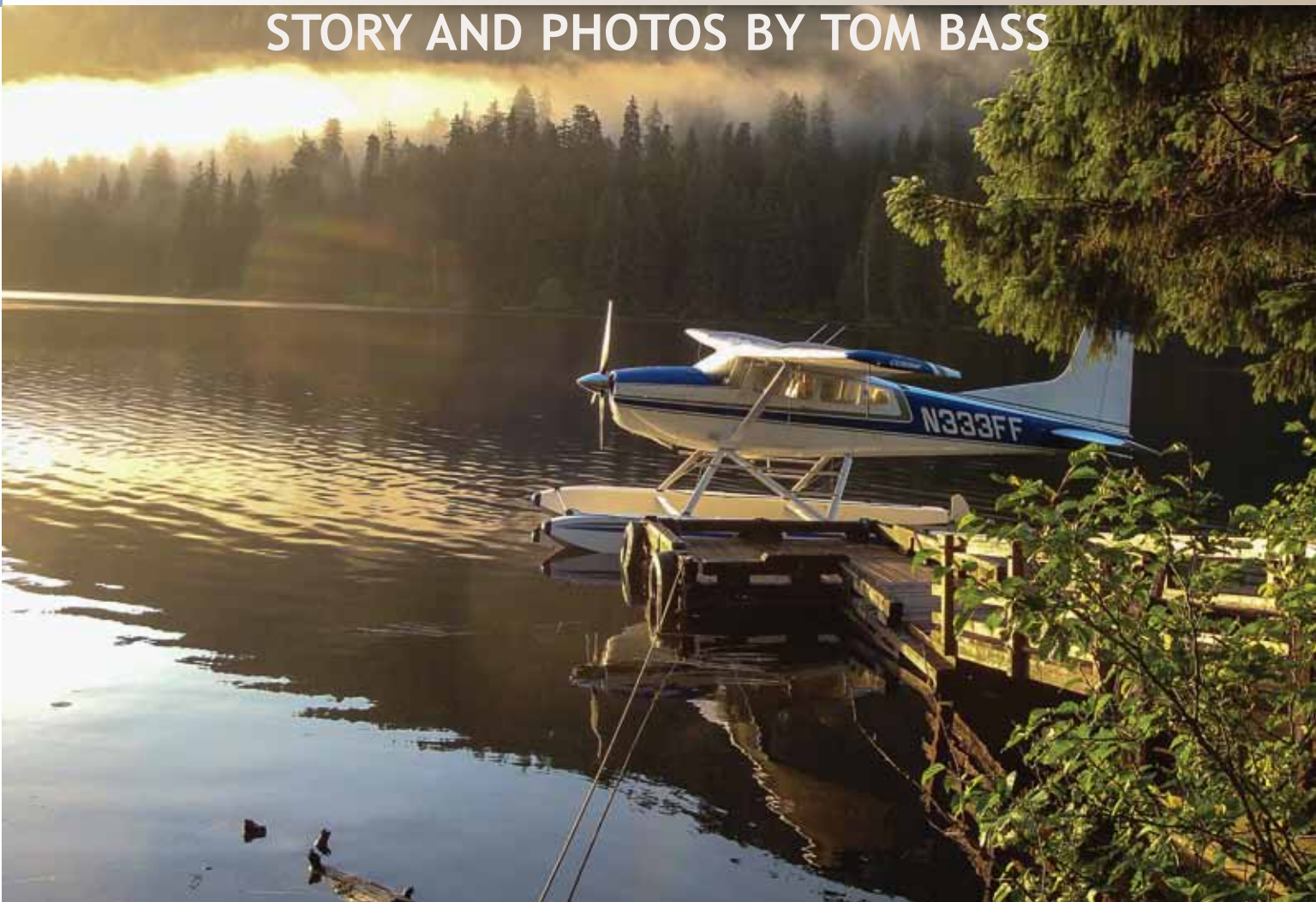
FLOATPLANE FLYING TO REMOTE AREAS, ESPECIALLY IN ALASKA OR CANADA, IS A TOTALLY DIFFERENT EXPERIENCE, WITH TOTALLY DIFFERENT FLIGHT-PLANNING REQUIREMENTS, THAN THE 100-MILE TRIP FROM YOUR HOME TO YOUR FAVORITE LAKE.

You probably are not familiar with the terrain you might encounter, and its effect on weather. You may not have XM satellite weather or ADS-B weather reception for the entire route. And unless you've been there, you won't be familiar with Canadian or Alaskan weather reporting sources. Nearing your destination, you may be out of radio

contact, and your cell phone won't work. In other words, you will be seriously beyond range of your comfort zone. Fortunately, help is available, thanks to technology.

Over the past 15 years of my flying to Alaska, a revolution has unfolded in affordable handheld devices for GPS, weather reporting, traffic, and all kinds of com-

STORY AND PHOTOS BY TOM BASS



munication equipment. I have kept up with this transformation in equipment, and my flights now are safer and more interesting. Yours can be, too.

Planning a trip to a remote destination and flying the trip always gets back to weather. The most important part of the planning process is to know what tools are available and which ones you are going to use on your trip. Understanding and using the right weather tools reduces pilot stress and enhances the safety of your flight. Always remember that most accidents in Alaska have a weather factor relating to the crash.

Weather transmitting tools: ADS-B

The FAA has created a free system that transmits ground-based weather radar images, TFRs, winds aloft in text format, temperatures in text format, METARs, TAFs, airmets, sigmets, pireps, and traffic. Like most things the FAA designs it is large, incomplete, cost inefficient, and not compatible with other countries. ADS-B weather does not work in Canada, does not work on the ground in most cases, and is limited in its product offering compared to XM systems.

In the lower 48 United States (CONUS), ADS-B is an acceptable system because when you are on the ground and in cell range there are many other sources of weather data. However, floatplane pilots have some unique issues with ADS-B. If you are at a remote lake in CONUS or Alaska, you will not receive a signal on the ground and there is a good chance you will

not be in cell range; this means you are going to take off not knowing what the weather is at your destination. The situation in Alaska is worse because there is no SiriusXM satellite weather option.

I have found the weather functions I use most are radar, METARs, TAFs, winds aloft, and lightning. In most cases the information provided by SiriusXM is better. When I travel across the country the one thing that shuts me down is lightning, and ADS-B does not have it.

We do have an ADS-B antenna/receiver, but I see it as a backup for my XM system and my only onboard source in Alaska. ADS-B antennas cost between \$550 and \$900 depending on features. When you install the Garmin or Stratus ADS-B receiver/antenna, do not depend on the battery; figure a way to power it from the plane. When you are out in the sticks, charging on land every night is a major hassle, or impossible.

GPS systems usually have an option that gives you a simulated view of your panel. The attitude indicator and other gyro-based instruments are calculated based on your turn rate and speed, not on a gyro. For a few hundred dollars you can add an electronic gyro to your ADS-B antenna; I have tested this and it works great. Also note my mounting system using a standard 3 1/8-inch hole; if I change my mind or something better comes along I have an out.

Weather transmitting tools: SiriusXM

As you can see from the previous paragraphs, I am not a big fan of ADS-B,

and prefer my XM system. However, there are three problems with XM. First, it does not work well on iPad or Android applications. Second, it is not free. Third, it does not work in Alaska. There have been several attempts to get XM on ForeFlight and Garmin Pilot and both say they support it, but I have not found any review of the product that has anything good to say about it.

The exception is a panel-mount system that supplies the XM signal through a Flitestream 110 or 210. I am sure someone will solve this problem, but it is not ready for prime time yet. This means you need a Garmin handheld or panel mount to take advantage of XM.

The service is sold at three subscription levels. \$35 dollars a month gets you CONUS and most of the features a private pilot needs. For \$55 dollars a month you get more data and Canada. Because I am in Canada several times a year, I have this option. It also includes lightning, which I think is important. There also is a \$99 option designed for those who fly in class A airspace.

So how do you cost-justify \$660 dollars a year? For me, it is peace of mind. Because of my weather receiving ability I can make better decisions. I also save time and money by not getting into the air and then having to turn around when I discover the weather is bad. XM does work on all Garmin portable devices from the 396 and up and panel mounts from the 430W and up. The cost of a GXM 42 Weather Receiver (for 696, 796, 510 and 560 Garmin GPS units)



These two pictures were taken about 12 years ago at Marten Lake Cabin near Wrangle, Alaska. This was before weather was available on handhelds and before I owned a satphone. We landed at Marten Lake and it started to rain. It was so shallow we could not park the plane in front of the cabin. Three days of rain later, the lake had gone up three feet and the original tie-down position was two feet under water. If we had not had the marine handheld radio to contact FSS, we would have been two days overdue on our four-day flight plan. Some extra, dry camp food got us through the extended stay. My friend, Lon Davidson, is standing in the doorway thinking, "Another fine mess Tom got me into."



Flying into Vitus Lake on the Gulf of Alaska to check out the Vitus Lake Cabin, we ran into this ice floe, which caused us to land a mile away and hike in. Ice calving varies from year to year and can cause ice floes that are not predictable. Best source of information on what is going on in a given area is usually a nearby commercial float plane operation.

is \$599. The GXM 42 receiver is hard-wired only—no Bluetooth.

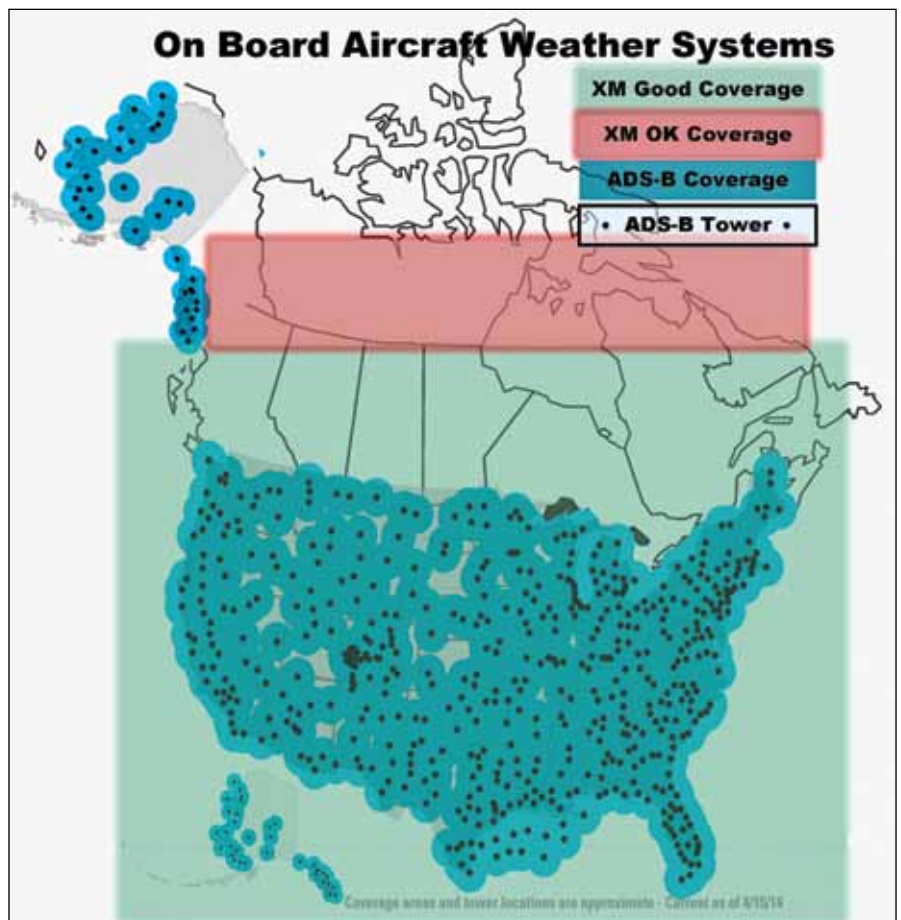
Antennas and receivers for panel mounts

This is a long and complex area that is best handled between you and your avionics shop. For planning purposes assume you are going to pay at least \$4000 for an XM or ADS-B receiver plus installation. This assumes you have a panel-mount navigator to support the data.

One new product in this area that I would like to add to my panel is a Flightstream 110 or 210. If you have a Garmin ADS-B or XM receiver for your panel the 110 will send the data by Bluetooth to your portable devices. The 210 duplicates the 110 function and also allows you to load flight plans from your portable devices back to Garmin GNS 430W/530W or GTN 650/750 navigators. I like to load my flight plan the night before, and the 210 would allow me to transfer it to my 430W from my 796.

Other sources of weather info in Canada and Alaska

Flight Service Stations. On a scale of 1 to 10 I give Alaska Flight Service a 10, Canada an 8, and CONUS a 4. In Alaska the FAA still has 17 locations where you can go in and get a weather briefing. I



Over the past 10 years private aviation has improved by about 35 percent. This is due mainly to better situational awareness through use of GPS units and the weather systems they support. Get a weather briefing that fits your travel needs, either ADS-B, XM, or both.

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no longer use Flight Service in CONUS because my electronic options are so much better.

In Alaska I use Flight Service for weather every chance I can. Remember, in Alaska we are flying in unfamiliar topography and weather. It changes quickly; the ocean air and mountains create situations you do not see in Kansas, and you are flying further with fewer options. Bottom line: get a brief in person and have a permanent flight plan on file.

Canada has several regions for their Flight Service, with Kamloops in BC handling the west coast. Flying the BC coast is always the most challenging part of the trip, and I always get a briefing for each segment of the Canadian coast. Between the northern tip of Vancouver Island to Prince Rupert there are about six lighthouses that send Kamloops weather reports. I do not take off unless all of them are showing a ceiling of at least 1000 feet.

Remote communications outlets (RCOs). Both Canada and Alaska have a good network of RCOs. Due to the lack of other sources of weather data, these become more important than in CONUS. In Alaska RCOs are linked to the closest FSS so the data they have is current and the person you are talking to knows the area. When flying in remote areas give frequent PIREPs to help the next guy flying through.

One difference between the systems is that in the U.S. each RCO in a given area has a unique frequency, while in Canada you can stay on one frequency and switch from tower to tower. Make sure you know how to use the Nearest function in your GPS to locate the right



I use Ram mounts to affix all my portable electronics to the panel. I have found that GPS handhelds on a knee board or clamped to the control wheel do not work for me; they also create a clutter of wires. When I made the panel 10 years ago I added as many large and small instrument holes as possible. These were to be used for instruments not yet on the market, as well as portable GPS units. The mount shown above is for the copilot iPad. To get everything on the hole cover, I trimmed the mount and added a power source for the iPad and a switch. The switch is not critical, but I like the ability to turn everything off. The plug at the bottom was for my old Garmin 396, which I left in the panel for backup.

RCO. If the nearest does not work—it may be on the other side of a mountain—try the next one.

Webcams Alaska has a great system of webcams that can be seen at <http://avcams.faa.gov/>, which is great if you are still in your motel or the FBO. Not only do they have a lot of cameras, they



When it rains for three days it is good if you can entertain yourself. No, we did not really kill the squirrel.



The photo shows how the iPad and the Garmin 796 look in my Cessna 180. Because I am usually looking at XM weather on the 796 and the iPad only receives the ADS-B weather, we have been able to get a good comparison of the two systems.

are in most of the critical locations, and the website is well organized for ease of use. Canada has a similar system at <http://avcams.faa.gov/>, which also is well organized but does not have the camera density of Alaska's.

Aviation weather websites. Both Alaska and Canada have lots of excellent weather websites, but I stick to these two because they are aviation based and, in general, the people who run them know what we need to know. Bookmark <http://aawu.arh.noaa.gov/> for the U.S. and <http://www.navcanada.ca/> for Canada.

Sat phones, aviation handheld radios, and marine handheld radios. I only carry a sat phone when I am in Alaska or Northern Canada. In many cases this is the only weather source and the only way I can open a flight plan without first taking off and establishing radio contact. If you are on a multiple-day flight and you get weathered in, they will come looking for you if you do not close your flight plan, and in some cases the only way to do that is with a sat phone. It also is the best solution if you or the plane has an emergency of some kind.

A handheld aviation radio also is a useful tool for getting information. In Alaska and Canada you are supposed to monitor specific frequencies in each area, and most pilots follow this rule. If you want to know the weather in the next town, ask the plane flying by; he is probably going there. In Alaska many of the lakes we fly into are near rivers, the ocean, or inland salt water, which have a lot of marine traffic. With a marine

handheld you can sometimes make contact with the outside world.

Conclusions and observations

1. Over the last 10 years private aviation safety has improved by about 35 percent; this is due mainly to better situational awareness through use of GPS units and the weather systems they support. Get a weather reporting system that fits your travel area: ADS-B, XM or both. Do not leave home without it.

2. Consider the Garmin 796 over iPad or Android devices.

3. Have a thorough understanding on how to use your weather and GPS systems before you leave.

4. File flight plans and get detailed briefings before you take off in remote areas with which you are not familiar. Take advantage of all reporting systems available when making a go/no-go decision.

5. Have good weather discipline, and be prepared to sit it out when bad or even questionable weather occurs.

6. Carry portable devices to contact FSS, or to relay a message if you cannot contact FSS directly.

Check out my article "Building Confidence for Wilderness Adventures" in the November/December 2015 issue of *Water Flying* (page 24) for more information on this subject. ■

Tom Bass started flying at age 50 and has logged more than 2600 hours, including 900 hours on straight floats. His website www.publiclakecabinsak.com covers the cabin system of Alaska and other subjects on remote flying.

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