Winter Operations: Pilot's Perspective

Winter operations present a very challenging set of circumstances for all pilots. All the Part 121 aircraft are certificated for flight into known icing conditions, and because of that, we have to have special training in the procedures that are required for safe operation, airborne and on the runways and on the taxiways. There's a lot of extra work involved for aircrews. There are several checklists --extra checklists-- that have to be run in conjunction with our normal departure and arrival procedures. And we take a very close look at the airport conditions. We have to have timely information from Air Traffic Control, telling us what is happening with the surface, with the runway's conditions, with the taxiway conditions, with the surface wind, and with the visibility and the type of precipitation that is falling. And once we have that information, we will then be able to go to work and decide what the limitations are on our operation, how quickly we can achieve clearances given by Air Traffic Control to us, and how we can safely work in conjunction with other aircraft on the approach, on the runway, exiting the runway. It's a very, very big deal for us, and we have to be very slow and very methodical about the way we operate. Winter operations present an enormous challenge to aircrew. It doesn't matter where in the country you have your winter operations, but particularly at very busy airports with multiple runways that might be intersecting with each other, winter operations, to a pilot, are flagged by airport conditions on the surface -- the runway, the taxiway surface -- and on the approach -- the kind of weather that an aircraft is flying through on the approach and how we would operate that specially. Directional control and ability to brake is a huge deal for us. Obviously, we are maneuvering several hundred thousand pounds' worth of metal on slippery surfaces. It's important we know the condition of the surface, so we can judge what the braking action is going to be like when we land on it, and especially when we're slowing down to make a high-speed turnoff, which, in winter operations, a high-speed turnoff is not going to be done at high speed, because we don't really know what to expect once we leave the runway surface and head off for the taxiway. So you will find that just about every pilot is going to be very gingerly approaching that high-speed turnoff, because the braking action frequently is much worse than on the runway. So the surface condition and the surface wind and how it's affecting us is very, very important for us to judge and to be prepared for. It is absolutely vital that we get timely and accurate information from Air Traffic Control via frequent ATIS updates, via the airport conditions NOTAMs that are put out, and from the one-on-one conversations we have with Ground Control, Approach Control, Tower Control. We need to have constant updates on surface wind, on changing visibility and runway visual ranges, and by previous aircraft landing and reporting braking action. That's very, very important to us. So we have the best tools available and the best information available to make good decisions about how we're going to continue that approach, how we're going to touch down, and how we're going to handle braking after touchdown. One area that I think it's very important that air traffic controllers understand is that the limitations and procedures that we're faced with

after we've started our engines at the gate and we're starting to taxi out towards the runway for departure, it's not just a matter of taxiing the aircraft carefully on slippery surfaces and getting it up to the start of the runway. We have several procedures that we have to follow, flight manual limitations that dictate specific checks and engine run-ups that we need to do. Engine run-ups are a big deal. Most jet engines -- all the ones that I've operated -- have limitations put in place about operation on the surface, with frozen precipitation present or with slush on the taxiway. There is a risk of ice accretion on either the cowling of the engine intake or on the fan blades themselves or on blades behind the front fan blades. We have to do engine run-ups, depending on the engine, every few minutes. That's dictated to us by the flight manual. Different engines have different requirements. But we have to do these run-ups in order to shed any ice that may have stuck to fan blades on taxi out. So it's important that we let Air Traffic Control know what our requirements are as we're taxiing out, that we need to slow down or stop and do these engine run-ups. We can't just necessarily taxi out for 30 minutes, and then do the engine run-ups. We may, depending on the engine, need to do them every 5 minutes or every 10 minutes. So it's important for us to coordinate that, and it's equally important for Air Traffic Control to understand what our needs are there and to provide us the space accordingly and not have us too closely spaced to aircraft in front of us or behind us. Obviously, we don't want to be affected by jet wash coming back from them, throwing frozen precipitation on us. Also, in case we start to slide, we have to have increased spacing, because we're never going to be able to stop the plane in the same space that we would on a normal, dry surface. During winter operations, it is more important than ever to have good, proactive interaction, intercommunication, between both the control tower and the aircraft. Nobody wants surprises when weather is bad and options are few. That's so important to us, and it is obviously important to Air Traffic Control as well. So if I have a special need in my winter operations, it's important that I communicate that to Air Traffic Control all the way along. "I'm going to need to do an engine run-up every 10 minutes. Shall I stop here? Do you want me to move off to the side?" These are things that I have to know. And Air Traffic Control must be ready, and I must not surprise Air Traffic Control with these. During winter operations and inclement weather, it is frequently our need as pilots to configure an aircraft earlier on the approach than we might do in better weather conditions. So we're going to have to coordinate that with Air Traffic Control, and they are going to have to probably provide me with some increased spacing between preceding aircraft and proceeding aircraft. It's important to understand that I have a higher risk of having to make a go-around in winter operations if I cannot get the aircraft configured in time. It's very important that I fly at a stabilized approach and I'm at the correct speed and touching down at the correct point on the runway. And this is where Air Traffic Control is so important to us, that they provide us with very timely braking action reports. If the braking action is less than good, we have our red flags where we have to apply special procedures and have a lot more focus on runway exit plans and how much extra runway we're probably going to need during that approach and landing. If the braking action deteriorates down to a very minimal level, we may

end up having to abandon the approach period and do a go-around and go somewhere else.

During winter operations, it's very important when we're in the pre-flight stage trying to plan which runway we're going to use. Our requirements for a runway in winter operations may be very different from what air traffic controllers are planning. So it's very important to have good coordination, and if I need a particular runway, before I even leave the gate, I need to coordinate that with Air Traffic Control. It's very important to understand that strong cross-winds and any kind of a tailwind raise a big red flag for an air crew, because that will result in a longer takeoff roll or a longer landing roll. It's very important to understand that we're operating on a slippery surface, and we need to have the lowest ground speed possible for operating, especially after landing. It's very important to have accurate braking action reports, and it's very important for Air Traffic Control to understand that we're going to probably use a longer landing roll and a slower turnoff than we do in normal operations. Whether on takeoff or on approach and landing, it is very important for us to have a plan on how we're going to stop the aircraft. Occasionally on takeoff we are faced with a rejected takeoff situation, and that becomes a very much more complex situation to deal with when we're conducting operations during winter and when we may be faced with a strong cross-wind, for instance. We're going to use techniques on that rejected takeoff or on a normal landing that are techniques that we will not see during good weather operations. We're going to be using differential braking. We're going to be using differential asymmetric reverse thrust. It's so important that Air Traffic Control and the crew are on the same page about this and understand that we're doing our best, with your information that you're giving me as a controller, to minimize the risk of runway or taxiway excursion. To sum up, then, I want my friends in the control tower to understand just how important the winter operations issues are for us and the limitations that are imposed upon us, and for us to understand the limitations that are imposed upon Air Traffic Control. So this becomes a very important team operation, where we can proactively work together to absolutely reduce, if not eliminate, the risk of runway excursion or, indeed, taxiway excursion.
It is a team operation.