

The icemen cometh



Novosibirsk Tolmachevo's Ural-4320/DE-226 augur-rotary snow ploughs.

The Siberian winter is noted for its savage nature, yet in almost 20 years Novosibirsk Tolmachevo Airport in Ob, Russia, hasn't closed. **Donald Easton** talks to some of the airport's key figures to find the reasons behind its operational success.

Long nights, cold winds, constant snow and a location in the centre of a land-mass all make the Siberian winter notorious. It is in Siberia that, reputedly, the coldest towns on earth can be found. And yet, Novosibirsk Tolmachevo Airport is able to boast that in almost 20 years bad weather has not once forced the airport to close, thanks to a dedicated team with a well-rehearsed routine and the determination to keep the airport operational and competitive – even in the worst conditions. Now, advances in

technology are enabling them to increase their efficiency.

“There is no sharp change from autumn to winter,” explains operations manager Mikhail Yarovikov. “When the temperature falls below zero we consider it to be winter.” And fall below zero it does. In Novosibirsk, it is normal for temperatures to be below zero for five months of the year; -20°C is typical and -50°C is not unknown.

During the winter, snow falls on average every other day, but at Tolmachevo Airport they take it all

in their stride. “I don't think these are challenges; they are only challenges for newcomers,” says Yarovikov. “We live here. We have become accustomed to the difficulties, problems and challenges, so we know how to deal with them.”

Great specialists

The practical business of keeping the airport open in winter falls largely on the shoulders of Viktor Mekh and his aerodrome services team. Aircraft de-icing and anti-icing are handled by the airport's aviation engineering >>

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service, run by Vladimir Shametkin, who does not believe in taking on extra staff for the season. "People here are great specialists in their profession," he explains, "and if we were to hire people without knowledge or experience, it would take a lot of time to educate and train them." In his department there are four established teams, each taking their turn at a 12-hour shift. That way, no-one exceeds the 48-hour working week stipulated by Russian labour law.

Tried and tested procedure

Weather conditions are monitored by the minute and, as soon as snow falls, the airport staff spring into action. A top priority for Mekh is keeping the runway clear and maintaining the braking coefficient. When temperatures are only just below zero, say, from -3 to -5°C, falling snow is liable to become wet, which increases the risk of glazing. At slightly lower temperatures, from -8 to -10°C, the snow will be dry, and if the fall is only a light one the runway can be cleared simply by using an air-blower.

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Heavier falls require sweepers but, if the snow is wet, it and the ice have to be melted before being brushed away, and for this the airport employs a nitrate-based granulated product. However, this method has its limitations. It is only effective down to -12°C, which is another reason to move quickly. Once conditions on the runway have been stabilised, the taxiways and apron are cleared.

For aircraft de-icing and anti-icing, Shametkins' three-man team, which includes the supervising engineer, driver and operator on the turret, use LMD-2000 and JBT Tempest de-icers. The Tempest machines include an AirFirst option, which allows snow and ice to be blown off the aircraft before fluids are applied, greatly reducing the use of glycol. For fluids they use LyondellBasell Arctic (Type I) and Octagon MaxFlight (Type IV). In theory, the latter can be diluted but at Tolmachevo they never do so.

In the shed

Alongside the apron lie the equipment sheds, which greet visitors with warmth once they step inside. The sheds are kept heated to enable diesel-powered ground service equipment to be started without difficulty and to prevent the hydraulics from turning impossibly viscous.

A battery of snow-moving gear is kept in these sheds, including sweepers, blowers, throwers, ploughs and lifts. There are some unusual items, such as a custom-built >>



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air-blower, a leftover from the days of the Soviet Union, made from the VK1 engine of a MiG-17 jet-mounted crosswise on the rear of a truck. Its effectiveness is testimony to the ingenuity of the airport's engineers. However, although it has served the airport well, it is now uneconomical.

effective width of only 2m and used to take two hours to clear the runway. The airport now has four massive Vmmas SB 4500-combined sweeper/blowers, each with a 6.5m operating width so that the runway can be cleaned in just 30 minutes. Meanwhile, the old VK1 jet engine consumed a

to increase traffic by an initial 10-15%. "If the apron and the runway are always clear, it will allow us to increase our capacity," says deputy general director Abdul Kusaev. The "always" is significant because it alludes to Tolmachevo's almost 20-year record of remaining open around the clock and in all weathers. "This is a very good competitive advantage," says Kusaev. If Tolmachevo can keep functioning when other airports in the region have to close, then business will come their way.

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Also stored in the sheds is a vehicle with a front-mounted hay lift, which has been adapted for shifting piles of snow, and a machine for making the rotary metal brushes for the big sweepers, because in winter conditions the airport does not want to be dependent on distant suppliers.

Meanwhile, out on the airfield, a Ural-4320/DE-226 augur-rotary snow plough roars along the edge of the tarmac, gobbling up piles of snow and hurling them aside in a shimmering 50m arc.

New purchases are making new efficiencies possible. The older sweepers, although 3.5m wide, had an

horrifying 800l of fuel per hour, whereas the more modern Vmmas SB 4500s use no more than 50l per hour. For chemical de-icing of the runway there are plans to migrate to newer, acetate-based Nordway liquids from Roshalsky Chemical Plant (RCP Nordix). These are effective at temperatures down to -34°C and will give the airport much more flexibility. They are also better for the environment, but suitable spreaders will need to be bought.

A new runway

A second Tolmachevo runway is opening this year, and there are plans

Last winter was acknowledged as one of the coldest for the last 20 years, resembling the days when temperatures fell to -49°C in snowy weather and -30°C in April. This puts the theory of global climate change under question.

Nevertheless, taking into account that the winters are getting warmer and more sustainable overall, it will still be some time before global warming, or natural temperature change, dispels the Siberian winter altogether, so the Tolmachevo team will no doubt be in business for the foreseeable future. ■



The new Vmmas SB 4500-combined sweeper/blowers can clean the runway in 30 minutes.