

# Sochi organizers stockpiling snow – just in case

By John Branch, New York Times

SOCHI, Russia – The biggest worry among organizers for next year's Winter Olympics is not whether the sites will be in order, or that the 30-mile road and the new railroad tracks and the thousands of hotel rooms all being built from scratch will be complete, or that the stands will be full of fans despite this city's remote location.

The biggest worry is the one the Russians cannot control: the weather.

And they have plenty of reasons to worry.

The last Winter Games, in Vancouver in 2010, were bedeviled by unseasonably mild temperatures in British Columbia. Alpine ski races were persistently postponed because of fog and slushy conditions. Hidden hay bales took the place of snow to build mounds for various courses. A lasting image of those Games is that of helicopters ferrying buckets of snow to the snowboarding site.



Sochi is more worrisome. This city of nearly 500,000, filled with palm trees and year-round flowers, hugs the shore of the Black Sea. Unlike Vancouver, where most of the outdoor mountain events were 90 minutes away around Whistler, the venues

in the Caucasus Mountains are about 30 minutes away, up a winding canyon.

There is a plan, and it does not include helicopters and hay

bales. Sochi organizers, fully aware of the problems in Vancouver, have installed what they say is the biggest snowmaking operation in Europe. More than 400 snowmaking cannons, each looking a bit like a jet engine, are continually spitting streams of crystals for next year's Olympics.

On the advice of a Finnish company called Snow Secure, the goal this season is to stockpile 500,000 cubic meters of snow into 10 shady pockets above the venues. The massive piles will be covered by insulated blankets, not unlike giant yoga mats, to protect them from the heat of summer.

Up to half of the saved snow may melt by next winter, but the site managers said they could conduct the Olympics even in the unlikely event that no natural snow falls next winter. The stockpiled snow can be shoved down the mountain with snowcats or guided onto steep slides – pipes, a meter in diameter, cut in half – aimed at where the snow is most needed.

“Each venue in the mountains has its own peculiarities,” said Valeriy Lukjanov, whose job is to forecast the weather at the Sochi Games, perhaps the least appreciated task of them all. He sat in his office recently in the mountain valley where more than half of the events will take place.

“Last year, there was a meter of snow outside this window,” Lukjanov said.

One year from the start of the Sochi Games, there was none.

The places hosting the mountain competitions – not only the five Olympic sites, but also the ski resorts surrounding them – are mostly new, constructed since Russia was awarded the Games six years ago. Sochi has little experience in hosting world-class sports events, and little historical climate data is available to fully appreciate the weather possibilities.

With few exceptions, the weather stations have been in place only since 2010. What the Russians have learned since then is

that the weather in the mountains above Sochi can be wildly unpredictable.

In February, World Cup snowboard cross and ski cross events were canceled because of a lack of snow, and other competitions at the Extreme Park were held amid criticism of slushy conditions.

Two years earlier, part of the European Cup Alpine skiing championships was canceled because of too much snow. Low clouds rearranged the schedule for last month's Russian Alpine ski championships, an official test event. During the World Cup luge event in late February, it rained.

At the Olympics, unlike at test events, competitions cannot be canceled.

"During the Games, we will have more snow and we will have all the events," Dmitry Chernyshenko, the president of the Sochi 2014 organizing committee, said in an interview last month. "We didn't expect that the amount of snow we collected was not enough. So now we learned this lesson and paid the price."

Chernyshenko and other Russian leaders boast of the compactness of the Sochi Games. The venues are divided into two clusters: "coastal" and "mountain." The Coastal Cluster, next to the sea, is a ring of five arenas for indoor events, like figure skating, speedskating, hockey and curling. A sixth site is an outdoor stadium, intended for the opening and closing ceremonies.

The average high temperature in Sochi in February is about 50 degrees. An overcast sky is likely, and snow falls only occasionally. As if to demonstrate how unwintery Sochi is, in February the city hosted a national racewalking event – a rare sport from the docket of the Summer Olympics, contested at the time and place of next year's Winter Olympics.

The weather in the city of Sochi is not the major concern of

Lukjanov, the deputy director of the Russian meteorological service, who was assigned last year to be the chief meteorologist of the Olympics. He oversees a team of 50 dedicated to analyzing and predicting weather in the region through next February. The team includes 37 meteorologists. Most others are data technicians, helping assess the 50 remote weather stations that have been installed across the valley in the past three years.

Their primary job is to explore and forecast all possibilities, particularly in the sites that hang on high plateaus and dot the mountains above the valley floor, which is at an elevation of roughly 1,800 feet, or 500 meters. Although the new sites are so close as to look like a constellation on a map – getting from the valley floor to any of them takes no more than about 15 minutes – they sit at widely varying altitudes. Each has its own climate vagaries.

In February, whether one stood at the valley floor or took a gondola up to the highest reaches of the jagged, frosted peaks, the quandary was thrust into sharp relief: the mountains looked striped, horizontally, as if with giant paintbrushes. There was a white ribbon sweeping across the upper regions above timberline, a brown swatch closer to the valley floor, and an earthy mix between, where rain and snow and fog mingled daily in a climatic tug of war.

The RusSki Gorki Jumping Center, easily spotted near the valley road, sits at about 2,000 feet (610 meters), between two ridges that protect the two jumps from wind. But last month, no snow had accumulated there, and some training was canceled by heavy rain. Part of the surrounding slopes was being reinforced because of problems with mudslides.

Nearby, the Sanki Sliding Center, the home of luge, bobsled and skeleton, rests on a plateau at about 2,300 feet (700 meters). Most of the track is covered, so weather may not hamper competition. But it seems to sit in a transition zone.

Last month's World Cup events took place amid mostly fog and rain. A year earlier, the track was smothered in deep snow.

The Extreme Park, for snowboarding and free skiing events like the halfpipe, moguls and slopestyle, is an intimate place snuggled into a hillside at 3,280 feet, or 1,000 meters. Above-freezing temperatures can play havoc with the halfpipe, and a lack of snow can hamper the long, winding courses for snowboard cross and ski cross.

Across the valley is the Laura Cross-Country Ski and Biathlon Center, two stadiums on a shelf at 1,500 meters, about 4,920 feet.

"Starting from 1,500 meters, there is always snow," Lukjanov said. "Always."

The most vexing site, as usual, will be for Alpine skiing at the new Rosa Khutor resort. The men's downhill will begin above timberline, at roughly 2,000 meters (6,560 feet), and end at the common finish area, at 940 meters (3,084 feet). The worry, as with most courses on the World Cup circuit, is that there will be too much snow at the top, low visibility because of clouds along the way, maybe some rain and too little snow at the bottom.

"Vancouver had problems with snow," said Sergei Estrin, the venue manager for Alpine skiing. "We try to analyze the experience of the previous Games. That's why we have the backup plan with snow in storage. That's why we give a lot of attention to the possible problems and we try to solve it in advance."

A few miles and about 1,800 feet below, on the second floor of a small house in the valley, the Olympic forecasters are monitoring the weather with a series of computers.

Asked if he has been told that he better supply good weather to the Games, Lukjanov smiled.

“Sometimes, they don’t like the weather, so they blame the forecaster,” he said, describing a universal problem for meteorologists. “For us, the most important thing is to give the right forecast.”