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Nine-year-old Alex Luithly makes a snow angel on the playground at Garfield Elementary School during recess Wednesday afternoon.

Winter brings back moisture

As days grow longer, storms grow stronger

By LISA COALWELL
FOR THE REPORTER-HERALD

After last week's below-zero temperatures, today's official designation as the first day of winter seems a bit anticlimactic.

"There's a lot of winter that comes before Dec. 21," said state climatologist Nolan Doesken. "The calendar definition of winter just isn't right" for the Front Range, he said. Doesken explained that in the past 120 years or so, the area has always had some form of frozen precipitation by the first official day of winter.

This past week's low temperatures weren't originally part of the picture, though, according to a forecast from the National Weather Service's Climate Prediction Center.

Mark Heuer, a meteorologist with DayWeather Inc. in Cheyenne, Wyo.,

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Let it Snow

Wind might be even more prevalent than snow in early winter.

"We get storms from December through February, but they have a hard time putting down much moisture, with the wild exception of the storm in December of 2006," state climatologist Nolan Doesken said. "The old expression, 'As the days grow longer, the storms grow stronger' holds true. December, January and February are the driest months of the year on average. The storms blow through quickly, it rarely rains and we get powdery, dry snows."

March is the month for "crazy storms," Doesken said. "That's when we typically get blizzards and wet snows, like the 2003 monster that broke so many roofs in Loveland and Fort Collins."

In late winter, the air begins to warm, he said, and can carry more moisture. The air masses move more slowly, which means "the storms slow down and lash you for a longer time."

In addition, the warming atmosphere south of Colorado spawns warm air masses that clash with cold air moving down from Canada and Alaska, creating conditions ripe for severe snowstorms.

But, said Doesken, the lengthening days and stronger sun mean that snow melts more quickly than in early winter.



Feb. 16, 2006
Rocky Mountain National Park



Dec. 22, 2006
Loveland



March 11, 2004
Loveland

What's Coming?

The National Weather Service's Climate Prediction Center's three-month forecast predicts temperatures near to slightly above average for the Northern Front Range, DayWeather's Mark Heuer said.

But Heuer said that forecast is due to be updated, and he expects the month to end colder,

rather than warmer, than usual.

As for precipitation, if the La Niña pattern of cooler Pacific temperatures now starting continues, Heuer said the season could be wetter than average during the late winter and early spring, with the potential for heavy snowfalls from late February through April.

For those not looking forward to snow, there is a bright side.

Doesken said late winter is the time snows replenish the region's water supply.

"That's the time of year the snow accumulates in the mountains," he said. "We start looking at the snowfalls (to predict the water supply) around Feb. 1, and around March 1, it gets a lot more attention. By the end of March, we've got our water supply."



Jan. 3, 2008
East Loveland

WINTER: Next few months to determine water for later

FROM PAGE A1

said the center's December forecast predicted temperatures above normal.

"It's been the opposite," Heuer said.

"December temperatures on average have been below average, with many areas well below average."

He gave the example of Loveland's Tuesday temperatures, a high of 25 and a low of minus 2. The typical temperatures for the day range from a high of 33 to a low of 15.

The cold weather came as even more of a shock after the balmy days of November, which Heuer described as "a dry month, and one of the warmest on record."

The jet stream was well to the north in November, bringing warmer than average weather to the Rockies and High Plains, he explained.

But cold air was pooling in eastern Siberia, Alaska and Canada, and that pool became large and strong enough to push the jet stream south along the Pacific, leading to what Heuer called an "arctic outbreak," with temperatures as low as minus 18 in Loveland.

BLUSTERY DAYS

As winter officially begins today, "we can expect the coldest weather of the year, normally from now until Valentine's Day," Doesken said.

Because of warming Chinook winds, however, Front Range residents don't usually have to endure prolonged cold snaps.

Chinook winds result when air rushing down from the mountains warms as it loses altitude.

"The downslope warming Chinook winds bring relief to the winter cold," Doesken said. "We often get days in the 50s during December, January and February.

On average, we warm up to



Reporter-Herald/STEVE STONER

Skyler Johnson, 8, shows off his face, which he covered with snow while playing Wednesday during recess at Garfield Elementary School.

the 50s one in every four days."

He cited last weekend, when his official thermometer in Fort Collins registered 55 degrees on Saturday.

"Of course, it was then 5 degrees the next day, and minus 15 the next," Doesken said with a laugh.

"There have been some memorable extreme cold waves in my period of time on the job," Doesken said.

In 1983, the temperatures never went above zero for five consecutive days just before Christmas. In 1989, there was a three- to four-day stretch of extreme cold.

"Our little boy was only 10 or 11 months old then," Doesken recalled. "We had to take him outside for some activity, and we thought we were nuts. The daytime high was minus 10, and it was snowing like mad. Don't ever believe it when someone says it's too cold to snow."

Winters have been warmer in the past 15 years, though, Doesken added. With the exceptions of a 24-inch snow in 2006, and a cold December with "decent snow" last year, there has been a tendency for winters to be milder, he said.

In addition to the warming Chinook winds, there are

colder Bora winds that — in a convoluted way — help to warm the winter days.

"As air moves from 14,000 feet down to our level," Doesken explained, "it compresses and warms, based on the laws of physics. Bora winds usually occur after a Pacific cold front moves through the area, or there's a big low-pressure area over the northern and central plains."

Those cold air masses produce the downslope winds that can keep temperatures from getting even colder, he said.

He cited an example of a day in early December when the Loveland/Fort Collins area was experiencing windy and cold weather, with temperatures in the 30s.

"We thought it was nasty, but Denver was in the teens. We were getting the downslope warming effects of the Bora," Doesken said.

The Chinook winds also cause local temperature differences.

"Just last week, we were in the zeros and Estes Park was in the 20s," Doesken said, "and that was due to the warming effects of the Chinook winds, which are the downslope winds of a warmer air mass."

Local areas also experience differing winds in winter, based on geographical positions.

"January is the calmest month in Greeley and the windiest in Cheyenne and Estes Park," Doesken said. During the winter, wind-prone canyons, ridges and valleys might have winds every four to five days, while cold, dense air lingers in the lower valleys, allowing the winds "howling overhead to just slide right over the top."

"Loveland is in the transition area," Doesken added.

"The lower valleys east of town get less wind, while the hogbacks and areas west of town experience more frequent winds."