YAKIMA, Wash. -- With this year's heavy snowpack and a cool, wet spring that has delayed some harvests, it might be tempting to conclude that global warming isn't an issue in the Yakima Valley.

But some of the state's most respected climate experts say the planet is still warming as carbon dioxide levels rise faster than ever, and the results have major implications for the region.

Polar oceanographer Miles McPhee said unusual temperatures, plus the recent increase in tornadoes and storms nationally, indicate of a growing imbalance in the earth's weather patterns, caused by a rapid increase in carbon dioxide in the atmosphere and the oceans.

"You can tie that to the energy we've been seeing in these storms," said McPhee, a Naches resident and graduate of Stanford University and the University of Washington. "The earth has to address this imbalance by moving heat around, and it's doing it in a way that might not be advantageous for us."

It's true that temperatures in the Pacific Northwest have been cooler than average this year, but McPhee said temperatures in the Southwest have been higher than average.

Although recent years have seen wider variations with hotter and colder temperatures and different levels of precipitation, experts say it's just a matter of time before the definite impacts of global warming overtake those trends.

Water shortages in Yakima Basin reservoirs caused by less snow could become more frequent as early as the next decade, according to a report by the Climate Impacts Group at the University of Washington. Nearly a third of the years between 2020 and 2030 would see water shortages in the valley, according to the report.

And that would increase to as much as 77 percent in the decade following 2080, according to the report.

It's a major concern to junior water rights holders such as Sunnyside grower Charlie de La Chapelle, who says even two consecutive droughts would kill his business.

"Most growers worry about it to a limited extent," de La Chapelle said. "I have quite a bit more confidence in the prognostications."

Many researchers once argued longer growing seasons and other results of climate change would be good for agriculture, but McPhee says that school of thought is shrinking.
"They're finding out it's not," he said. "It's more than offset by the higher temperatures in the growing regions."

Climate change will also result in longer life cycles for invasive pests, such as insects and weeds, said Kirk Cook, a hydrogeologist and top climate official with the state Department of Agriculture.

"We're very likely going to have to be dealing with additional and new pests," Cook said.

Still, the major issue for agriculture officials is water availability, and Cook says they're already considering ways to increase storage capacity and promote conservation.

The shortages would result in about a 5 percent decrease -- $23 million less -- in apple and cherry crop profits annually by the 2020s, and as much as a 16 percent drop by the 2080s, according to the report.

The shortage forecast is a stark contrast to the time from 1916 to 2006, when less than one-fifth of those years had water shortages. It's also in contrast with 2011, a year in which snowfall on Snoqualmie Pass was 18 percent above the 10-year average and Chinook Pass saw its fourth-latest opening ever due to unusually heavy snowfall.

"We're still going to have those kinds of variations," said Nick Bond, the state climatologist. "But by the middle of this century, that climate change signal is going to overwhelm these year-to-year, decade-to-decade variations."

Bond said as temperatures change, the freezing level in the mountains will rise and more of the precipitation will fall as rain.

That will likely reduce the available water supply to the east while leading to increased flooding west of the Cascades, Bond said.

"The amount of warming will be bigger than the current swings," Bond said. "Even the coldest years in the 2050s will be like the warm years now."

The human contribution to this change is often debated, but an increasing number of scientific studies show the planet has more carbon dioxide trapped in it than at any point in the past 700,000 years, McPhee said. That extreme difference is attributable to humans' dependence on fossil fuels, and it's the reason the planet is warming, McPhee and Bond said.

There are some climate experts who acknowledge the rapid increase of carbon dioxide, but doubt its role in global warming. Don Easterbrook, professor emeritus of geology at Western Washington University, wrote in a report from 2006 that the earth is going through a natural fluctuation in temperatures. He says temperatures on average will rise by less than 1 degree Fahrenheit over the next century, contradicting reports that estimate an increase by as much as 4 to 11 degrees Fahrenheit.

Either way, it's clear there's no local solution to correct the accelerated pace of climate change. Though the Legislature has taken many steps to reduce the state's contribution to the growing levels of carbon dioxide, such as passing a law this year to transfer the state's only coal-fired power plant off coal by 2025, experts say winning the real battle will take a bigger, more coordinated effort.

"It's a global problem," Bond said. "What Washington does in terms of limiting carbon dioxide emissions is
not going to make a huge difference worldwide."

Cook said agriculture throughout history has been an adaptive industry, and he's optimistic agriculture officials and growers will find ways to weather the changes.

"It makes the sector probably more prepared to deal with the changes, but there's going to be some new wrinkles to pay attention to in the future," Cook said.

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ANDY SAWYER/Yakima Herald-Republic file
Among the mix of ideas for solving chronic water shortages in the Yakima River Basin is the expansion of Bumping Lake to 200,000 acre feet, a more than six-fold increase. However, expansion of the lake is one controversial part of a plan to increase water storage in the Yakima River Basin.

GORDON KING/YHR Irrigation on mint field on Lateral A near Marion Drain Road in lower valley... shot 4/11/03