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## **Havre scientist key to landmark ruling on global warming**

By **KIM SKORNOGOSKI**  
Tribune Staff Writer

On April 2, the U.S. Supreme Court ruled that the government is required to regulate greenhouse gases such as the carbon dioxide emitted by cars, trucks and power plants.

The decision could change national policy for decades to come and one of the key scientists behind it is a former Havre woman and emerging star in the global warming field.

Joellen Russell, 36, is the youngest of 14 scientists behind a report that influenced the Supreme Court decision. The scientific report concluded that global warming is happening and people are to blame.

She also convinced John Michael Wallace, a University of Washington atmospheric sciences professor and one of the world's leading global warming experts, to sign on, and consequently several other scientists followed suit.

"It made me a little nervous to wade into the political end of the pool," Russell said. "This seemed too important to pass up. You can't in good conscious allow the (Environmental Protection Agency) to use bad science to make enforcement decisions."

Russell traces her interest in the environment to growing up watching the wind in Havre. As a child, she listened to farmers worry about drought or having too many wet years.

"How could you not be interested in the things that make it possible to grow our food and make our lives possible," she said. "I find it endlessly fascinating."

In 1993, Russell earned a bachelor's degree in environmental geosciences at Harvard University. She went on to get a doctorate in Oceanography from the University of California's Scripps Institution in San Diego.

Russell quickly has risen to the top of her field.

Doing postdoctoral research at the University of Washington from 1999 to 2002, Russell worked with Wallace, publishing a study on the annual carbon dioxide drawdown in the northern hemisphere.

Wanting to explore wide-open spaces like those she knew in Alaska and Montana, Russell spent time studying the Antarctic Ocean. Battling the harsh weather and 40-foot waves, she promptly decided the best way to research the area was to use models.

Wanting to work with the best, Russell spent four years at Princeton, where a team of 20 people was running models using 120 super computers.

"I got really fortunate in that they were interested in what I had to say about the southern ocean," she said.

The model ended up being the very best of the southern ocean compared with 18 climate models from around the world. It has since been used in several reports on climate change.

It was a year ago that Russell learned about the developing lawsuit filed by 12 states — led by Massachusetts and California — that demanded the EPA take action on greenhouse gases.

The administration cited a 2003 report that maintained they couldn't monitor carbon dioxide because they couldn't prove that people and industry were causing it.

Leery of losing government grants and not wanting to tangle with such a political hot button, few scientists were stepping forward to challenge the EPA.

"It was a very brave thing," said Russell's mother Marilee Russell, who lives in Havre and works at Stone Child College. "I think it's nice to know when they stuck their necks out in that way, that it's come to good."

In a 5-4 decision the Supreme Court said it is the EPA's job to regulate any air pollution that endangers public health, including affecting climate and weather.

The door is now open to states like California, which passed strict emissions laws, as well as to having a national standard.

Now an associate professor at the University of Arizona, Russell is researching the effects that melting polar icecaps will have on the ocean and the creatures that live in it.

She expects two major changes.

The first is actually a decrease in carbon dioxide in the air because as the ocean grows, it will soak up carbon dioxide.

It will then turn the ocean water more acidic and dissolve the shells of sea organisms including the Great Barrier Reef.

Russell has spoken to experts on the topic, most recently in Paris before a panel from the United Nations Educational, Scientific and Cultural Organization.

Though the global warming issue is now gracing the covers of Time and Newsweek, when Russell first started her research 18 years ago few were paying attention.

"You work away in your own lab and you don't think anyone is listening," Russell said. "I'm in a growth industry — it's unfortunate that it's true."

Marilee Russell said if her daughter's research ended today, Russell's decision to take her scientific studies to the Supreme Court will continue to make waves for generations.

"If she never did anything more, it's a significant thing she's accomplished to protect Mother Earth," she said. "It's an awesome thing."

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