Oceans absorbing more global heat, UA researcher says

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Much of the heat that was supposed to fire up the globe’s air in the past 15 years — but didn’t — has gone into the ocean, a University of Arizona oceanographer said Friday.

Joellen Russell, a UA geosciences associate professor, said research by her and others has found that while the Earth’s surface temperatures have risen at a slower rate since 1998 than in the previous two decades, the oceans are warming up much faster than before. They’re apparently taking in much of the heat we’re not getting, she told a campus audience.

“They’re taking up a lot of heat, but it can only slow the rate of warming; it can’t reverse it,” Russell said.

She was one of four UA scientists to address the forum, which provided local researchers’ reactions to the just-released summary of the fifth report on global warming from the Intergovernmental Panel on Climate Change.

“We’re getting a tiny moment of grace,” Russell said. “It’s not warming quite as quickly, and it’s going into the ocean. With natural variability and decadal shifts in climate patterns, we expect to see more heat upon us in the future.

“When anyone says it’s not warming anymore, it’s actually warming a lot,” Russell continued. “It’s not leaving the global weather system. Sometime in the future, we’ll get that heat back and we’re going to be sorry.”

The question of the slowdown in warming since 1998 has vexed researchers and provided fuel for climate skeptics in recent years. They say the slowdown indicates that past computer models that predicted what some saw as apocalyptic future warming were wrong.

The IPCC summary report released Friday dealt only briefly with the question of the warming slowdown. But recently, Bloomberg News reported that a leaked draft of the entire new IPCC report — which still isn’t released — concluded that the oceans are becoming a repository for almost all of Earth’s excess heat, driving up sea levels and threatening coastlines.

The Princeton, N.J.-based website Climate Central also reported recently that another new study, published in the journal Geophysical Research Letters, concluded that a lot of the heat we don’t get is being stored in the deep ocean. Sooner or later, the ocean’s
heat will inevitably emerge, said that study, whose co-author is Kevin Trenberth of the federal National Center for Atmospheric Research.

The UA's Russell said that her research has found that intensifying, westerly winds — those heading from west to east — also are pushing up ocean temperatures, particularly in oceans in the Southern Hemisphere. Ocean heat there is rising at all depths, she added, as deep as 2,000 meters, or more than 6,000 feet below the surface.

“Most people think the ocean is warming at the surface, and everything else is left alone, but we’re seeing ocean warming from top to bottom,” particularly in her last five years of research, Russell said.

Another speaker at the forum, UA geosciences professor Julia Cole, laid out some local precipitation impact forecasts in the latest IPCC report.

Overall, wet areas such as the Northeast and Midwest will get wetter, while dry areas like ours will get drier, she said. The contrast between our wet and dry seasons will tend to increase. We’ll shift toward a pattern of fewer but more intense storms.

“There will be greater variability, with rain coming all at once, then not at all,” Cole said.

Southwest monsoon seasons overall are projected to weaken, but the confidence in that forecast is low and the consensus behind it is weak, she said.

“What we will see is a tendency to have decreased monsoons but with a lot of variability around that,” she said. “It’s likely the onset of the monsoon will come later, with more intense storms.

“Our most unbearable season is the hot, dry time before the monsoon, in May and June. The delayed onset of the monsoon means more of that.”

There’s also no scientific consensus on how global warming could change the strength and intensity of El Niño events, which are Pacific Ocean-based wind currents that typically trigger wet, cool winters in the Southwest, she said. Scientists are, however, very certain that El Niños will continue to happen.

“It will keep on chugging away and influence global climate,” Cole said. “It’s a very variable system, and it’s hard to see long-term trends in a very variable system.”

But high scientific confidence exists that continued warming in the Southwest will dry out moisture in our soils, even in areas that get more rainfall, she said.

**If you go**

Tucson Mayor Jonathan Rothschild will speak today about "the necessity of combating climate change," as will volunteers with the group Organizing for Action-AZ.
They'll be at the Climate Action Expo from 1:30 to 4 p.m. today at Civano Activity Center, 10501 E. Seven Generations Way.