Is climate change altering humans' vacation plans?

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Plants' and animals' seasonal cycles, such as flowering dates and migration patterns, have shifted in recent decades due to climate change.

Now a new study seems to indicate that some human weather-related behavior also is being influenced by global warming.

Researchers from the University of North Carolina at Chapel Hill found peak attendance in U.S. national parks that have experienced climate change is happening earlier, compared to 30 years ago.

According to the study recently published in the *International Journal of Biometeorology*, of the nine parks that experienced significant increases in mean spring temperatures since 1979, seven also saw shifts in the timing of peak attendance. For example, peak attendance at Grand Canyon National Park shifted from July 4 in 1979 to June 24 in 2008. Over the same period of time at Mesa Verde National Park, peak attendance changed from July 10 to July 1. The average shift was four days.

In contrast, of the 18 parks without significant temperature changes, only three exhibited attendance shifts.

"While the public continues to debate whether global warming is real, it appears that they are already adjusting their behavior," said Lauren Buckley, Ph.D., an assistant biology professor in the College of Arts and Sciences. "Visiting parks earlier may not be a big deal, but it may serve

as a bellwether for more severe human adjustments required to cope with climate change."

"We can't say for sure that global warming is causing this swing in visitation trends," Buckley said. "But this discovery does complement rapidly accumulating evidence showing how other organisms have had to alter their behavior in response to climate change.

"National and state park agencies may need to plan for shifts in when users and tourists visit, as well as how wildlife respond to changes in the environment."

She acknowledged that other factors – such as population changes, economic trends, park popularity and travel costs – influence park visitor numbers. However, those elements are more likely to have an impact on total annual visits, rather than affect the timing and size of trends at the monthly and seasonal scale, as observed in this study.

She noted that the findings highlight a long-term, chronic shift in human behavior. Existing studies related to global warming and human behavior have mainly focused on the potential impact of extreme events and disasters, such as droughts and floods.

Meanwhile, Buckley also is investigating whether climate change is driving alterations in other aspects of human behavior, from consumption of certain types of seasonal foods to shifts in birth rates. Her analyses are ongoing.

More information: "Footprints of climate change in U.S. national park visitation," *International Journal of Biometeorology*

Provided by University of North Carolina at Chapel Hill