

# The current heat spell is needed for the monsoon

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Will this week's high temperatures make it into the record book? Can we top 122 F? We don't know yet, but as we move through this extreme heat spell, one thing is for certain, the unpredictability of the weather means records will continue to fall, says Randy Cerveny, an ASU President's professor in the School of Geographical Sciences and Urban Planning.

Cerveny is the Rapporteur on Climate Extremes within the United Nations-affiliated World Meteorological Organization (WMO). He literally is the keeper of Earth's [weather extremes](#), recording and verifying (or repudiating) [weather](#) extremes as they are reported around the world.

Here, Cerveny talks about the current [heat](#) spell in the Valley and what it means for the rest of the summer.

## Q: Why is it so dang hot right now?

Cerveny: We have a large upper-air ridge of high pressure centered over our area, in essence a large "heat dome." Because air in a high-pressure ridge sinks and, as it sinks, warms, and is associated with clear skies, we have the opportunity for substantial warming. Finally, moisture (humidity) in our atmosphere absorbs heat – that's why places like Florida don't get up into the 100s. But presently the atmospheric moisture over Arizona is extremely limited, so the air and ground can heat up – in this case tremendously.

**Q: When and where is the hottest temperature ever recorded on Earth?**

Cerveny: Death Valley in California officially reached a [temperature](#) of 134 F on July 10, 1913. The next hottest temperature was a temperature in northern Africa of 131 degrees Fahrenheit in 1931. We are currently evaluating two temperatures of 129 F (in Kuwait last summer and in Pakistan last month) that, if verified, will be the 3rd hottest temperatures ever officially recorded on the planet.

**Q: If we were to break the record temperature, does it tell us anything about the way the weather is trending right now?**

Cerveny: This actually is the normal time of the year when we have our hottest temperatures—just before the onset of the wet phase of the monsoon. In fact, these hot temperatures are needed aspects for creating the shift in winds that allows moisture to flow up from the Gulf of California and Pacific Ocean. In other words, if it weren't for these hot temperatures now, we wouldn't have thunderstorms next month.

**Q: Is this a sign of the times, temperatures rising and weather extremes becoming more regular?**

Cerveny: Yes, we are consistently breaking more and more "high" temperatures and fewer and fewer "low" temperature records. That consistency in trend is something that has been going on consistently now for several decades.

**Q: Is this a sign of global warming?**

Cerveny: No, any individual heat wave is not a sign of global warming. But a growing consistency in the occurrence of heat waves (such as mentioned in the last question) is. In other words, as we continue to set new heat records next year and the year after, that is a sign of changing climate.

## **Q: Why are we fascinated by weather extremes?**

Cerveny: I think that our culture has always tended to promote the biggest, the highest, the strongest, etc., and that interest has led to great interest in the extremes of weather. Books from organizations such as the Guinness Book of World Records have always captured the interest of the public. Having been fascinated by those type of books as I was growing up, I find it interesting—and a bit humbling—to now be one of the group of experts that Guinness now calls to verify its own weather records.

## **Q: Will we see more records fall in the future?**

Cerveny: Absolutely. Our climate has changed, is changing and will continue to change, and as part of that, the extremes of climate also will continue to change. With the creation of the WMO's Archive of Weather and Climate Extremes under the authority of the United Nations (and hosted through Arizona State University), we will continue to officially monitor and verify those extremes.

Provided by Arizona State University

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