BUSINESS INSIDER

Why Planes Can't Fly In Extreme Heat

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A heat wave slammed the Western U.S. this weekend, shattering temperature records, fueling a deadly forest fire in Central Arizona, and even causing the cancellation of some flights.

According to The Telegraph, 18 US Airways flights from Phoenix were cancelled on Saturday, after temperatures hit 119 degrees.

The planes are certified to take off in temperatures up to 118 degrees, an airlines spokesperson told the Telegraph.

Why does extreme heat affect planes? We turned to Patrick Smith, airline pilot, blogger, and author of Cockpit Confidential, for the answer.

Extreme heat makes it tougher for airplanes to get off the ground.

REUTERS/Will Burgess

Serious heat can damage a plane's internal components, he explained, which is why some aircraft have maximum operating temperatures. But the heat also makes it harder for the plane to get off the ground at all.

Smith writes:

> Hot air is less dense. This affects the output of the engines as well as aerodynamic capabilities, increasing the required runway distance and reducing climb performance. Therefore the amount of passengers and cargo a plane can carry are often restricted when temps are very high.
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> How much so depends on the temperature, airport elevation and the length of the available runways. And getting off the ground is only part of it: once airborne, planes have to meet specific, engine-out climb criterion, so nearby obstructions like hills and towers are another complication.

So next time we see another heat wave like this, don't be surprised if you end up grounded.

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