2019 was the second-hottest year on record

2019 was the second-hottest year ever recorded, NASA, NOAA, and the World Meteorological Organization confirmed today. It's a fittingly disastrous close to the hottest decade on record. The news follows a similar announcement last week from the Copernicus Climate Change Service, an initiative of the European Union.

The only year that beat out 2019 was 2016. That year saw global average surface temperatures that were just 0.04 degrees Celsius higher than 2019.

2019 broke other records as well. Europe experienced its hottest year since record-keeping began. It was the warmest year documented for the oceans, according to a study published in the . It was also the second-wettest year in the US, NOAA reported last week.

Monthly global temperatures compared to the 1981–2010 average for January through December 2019.
Image: NOAA / NCEI / NOAA

It's no coincidence that 2019 was such an unusual year for the books, experts say. It all signals that climate change is already transforming the planet. "We are experiencing the impacts of global warming unfolding literally in real time," Stanford Earth science professor Noah Diffenbaugh told reporters during a press call this week.

2019 was the 43rd year in a row with above-average global land and ocean temperatures. The five hottest years since record-taking began in 1880 have all taken place since 2015. The

trend toward higher and higher temperatures, and the certainty with which it's being documented, is significant. "The main thing here is not really the ranking, but it's the consistency of the methodology and the consistency of the long-term trends," said Gavin A. Schmidt, director of NASA's Goddard Institute for Space Studies, during a call with reporters. He also said that those upward trends are essentially "100 percent" attributable to human activity.

The 43rd year in a row with above-average temperatures
Burning fossil fuels has already heated up the planet to 1 degree Celsius above preindustrial levels (during the latter half of the 19th century). The 2015 Paris climate accord sought to limit warming from rising 2 degrees, but scientists have since argued that, by then, the world could lose 99 percent of its coral reefs and see 70 percent of its coastlines shrink under rising sea levels. The World Meteorological Organization predicted that current levels of carbon dioxide emissions will likely get the world up to somewhere between 3 to 5 degrees of warming by the end of the century.

"The year 2020 has started out where 2019 left off – with high-impact weather and climate-related events. Australia had its hottest, driest year on record in 2019, setting the scene for the massive bushfires which were so devastating to people and property, wildlife, ecosystems and the environment," said World Meteorological Organization Secretary-General Petteri Taalas in a statement. "Unfortunately, we expect to see much extreme weather throughout 2020 and the coming decades."

Update January 15th, 1:32PM ET: *This story has been updated with more information from a media briefing held by NASA and NOAA.*

https://www.theverge.com/2020/1/15/21065751/nasa-noaa-2019-second-hottest-year-climate-change-record