2019 second hottest year on record

January 8 2020, by Patrick Galey

The five warmest years on record have all occurred in the last five years

The year 2019 was the second hottest ever recorded and a virtual tie with 2016, the warmest El Nino year, the European Union's climate monitor says in its round up of the hottest decade in history.

Data released by the Copernicus Climate Change Service (C3S) showed

that worldwide temperatures were just 0.04 degrees Celsius lower than 2016, when temperatures were boosted 0.12 degrees Celsius by a once-in-a-century El Nino natural weather event.

The five last years have been the hottest on record, and the period of 2010-2019 was the hottest decade since records began, C3S said.

Globally temperatures in 2019 were 0.6 Celsius warmer than the 1981-2010 average. Earth's temperature over the last five years was 1.1C-1.2C warmer than pre-industrial times.

Last year was Europe's hottest ever.

"2019 has been another exceptionally warm year, in fact the second warmest globally in our dataset, with many of the individual months breaking records," said Carlo Buontempo, head of C3S.

The year was just 0.04C cooler than 2016, which saw temperatures boosted by a once-in-a-century strength El Nino.
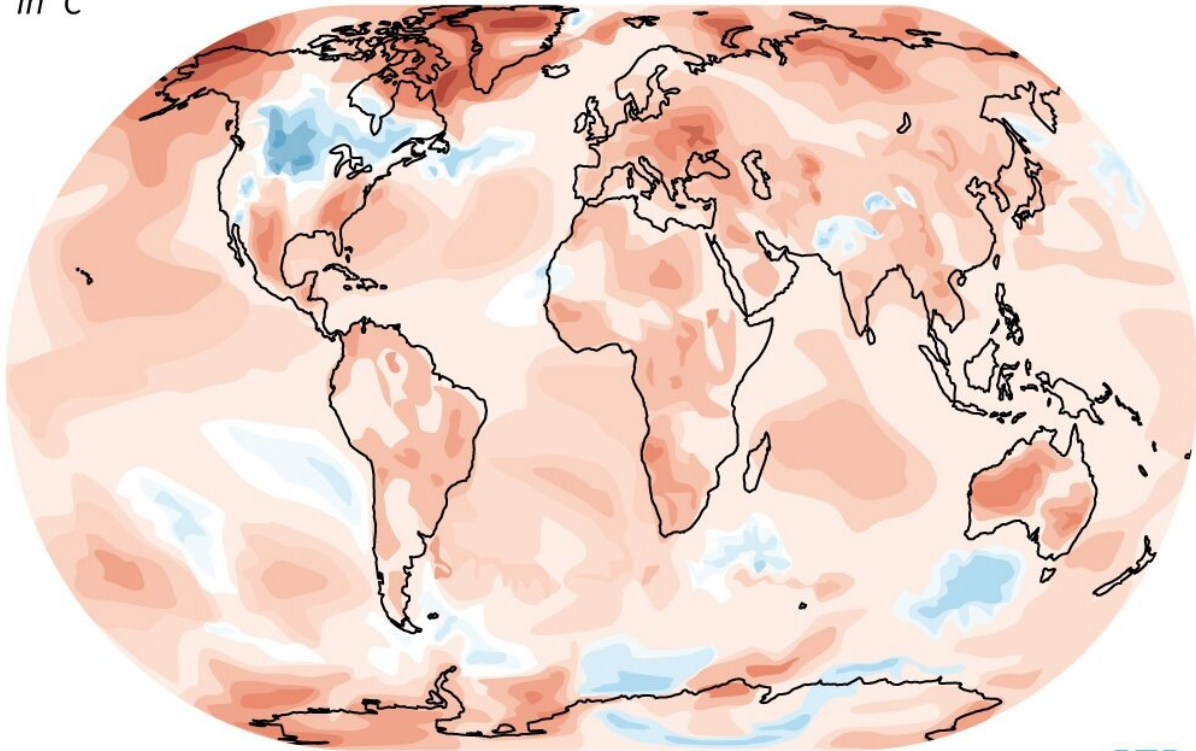
'Alarming signs'

C3S also said that atmospheric carbon concentrations continued to rise in 2019, reaching their highest levels on record.

2019: second hottest year on record

Global temperature difference between 2019 and 1981-2010 average

difference in °C   -6   -4   -2   0   2   4   +6°

Source : ECMWF, Copernicus Climate Change Service

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World map showing the temperature difference between 2019 and the 1981-2010 avearge, according to the EU's Copernicus Climate Change Service

CO_2 concentrations are now the highest they have been for at least 800,000 years.

The United Nations said last year that man-made greenhouse gas emissions needed to tumble 7.6 percent each year to 2030 in order to limit temperature rises to 1.5C—the more ambitious cap nations signed up to in the landmark Paris climate deal.

Current pledges to cut emissions put Earth on a path of several degrees warming by the end of the century.

The first week of 2020 has seen climate-related disasters such as the fires ravaging southeastern Australia and flooding that killed dozens of people in Indonesia.
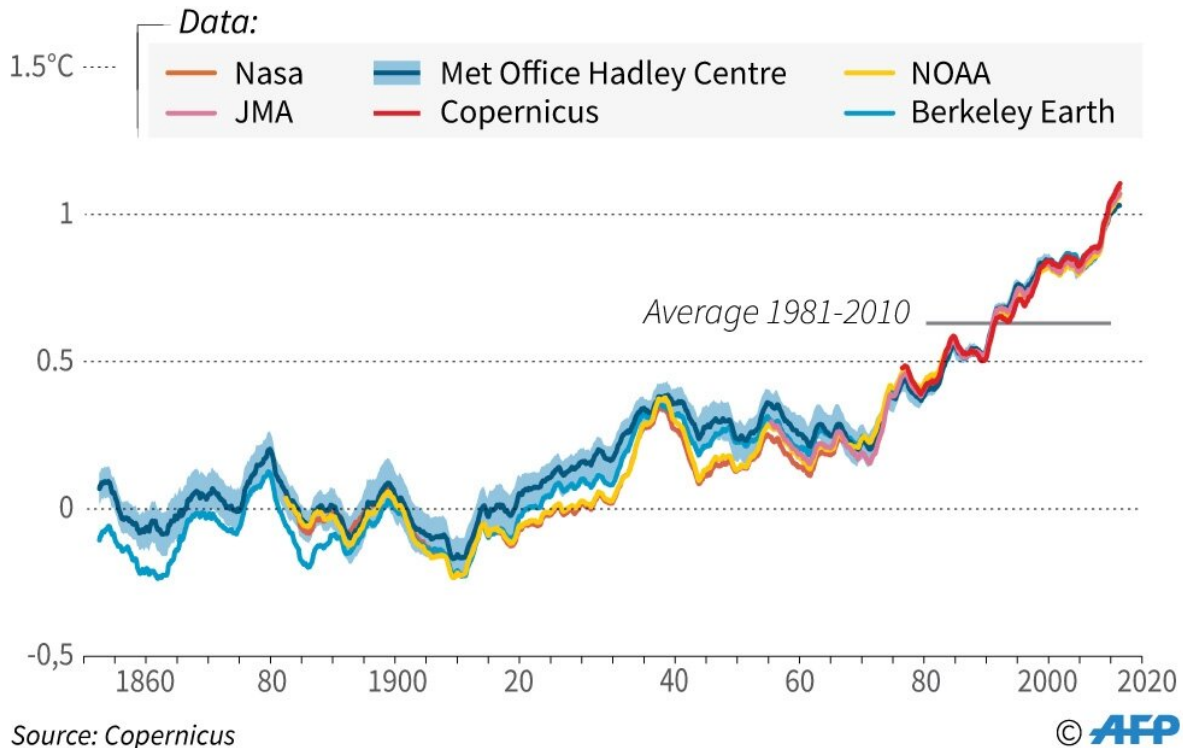
Scientists say such catastrophes will become more frequent and more intense as temperatures climb.

The UN estimates around 20 million people were displaced in 2019 due to climate-related disasters.

"The past five years have been the warmest on record; the last decade has been the warmest on record," said Copernicus director Jean-Noel Thepaut.

Rising temperatures

Progression compared to the pre-industrial level

The progession of global temperature since 1840

"These are unquestionably alarming signs."

The Copernicus programme uses observations from a variety of satellites, weather stations and weather balloons to produce short-term global and regional climate data which can be compared against reams of historic temperature records.

Its 2019 assessment shows both exceptional levels of short-term heat and a continuation of Earth's long-term warming.

Last year saw the most pronounced warming in Alaska and other parts of the Arctic, as well as large swathes of eastern and southern Europe, southern Africa, and Australia.

In Europe all seasons were warmer than average, with several countries registering both summer and winter temperature highs. December 2019 was 3.2C warmer than the 1981-2010 reference period, C3S said.

Australia was also three degrees hotter than historic averages in December, its Bureau of Meteorology said.

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