2020 Record Warm Year? Don't Bet on It.

Global Surface Temperature Relative to 1951-1980 Mean (°C)
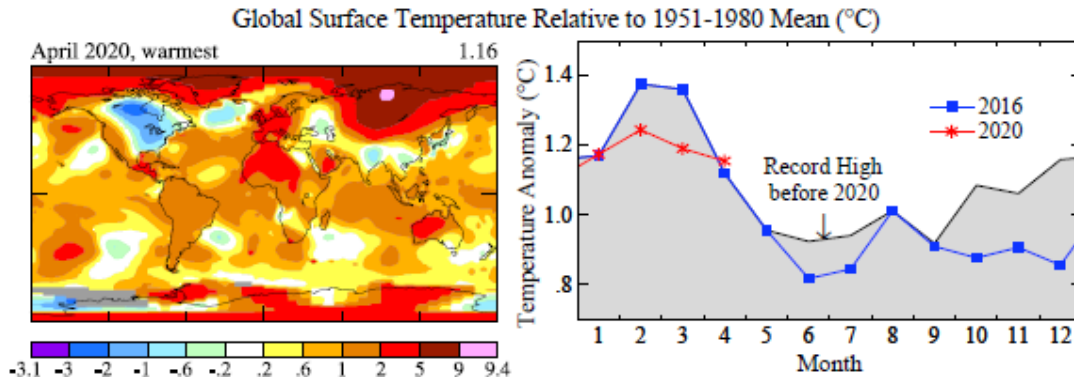
This year, 2020, should have record global warmth according to widespread media reports in April. The reports were based largely on a NOAA conclusion that such a record was likely with 75% confidence. April has since come in with record warmth for the month (see map above), although practically the same as April 2016. That should seal the deal, right?

Not so fast. Their expectation is based on the fact that the first few months of 2020 are almost as warm as the same months in 2016, and the fact that global temperature fell rapidly in the last eight months of 2016, as the super El Nino of 2015-16 faded and was replaced by a La Nina in the tropical Pacific Ocean.

The graph on the left below shows the Nino temperature index, including the NOAA NCEP model projection, which predicts a rapidly developing La Nina this year. So, the 2020 global temperature may fall as fast or faster than in 2016. A strong La Nina, if it occurs, will affect 2021 as well as the rest of this year, in which case we do not expect record annual global warmth until 2022, at the earliest.

The game of predicting near-term global temperature records is of little import. We just want to insure against public misinterpretation, if, as is perhaps probable, 2020 does not achieve the predicted record.

Tropical ENSO (El Nino Southern Oscillation) variability is the largest cause of interannual variability of global temperature, but there are other factors. The increase of greenhouse gases, mainly CO_2 and CH_4, will give 2020 a warming boost, but that will be partly offset by the present deep minimum of solar irradiance. The wild card is caused by a reduction of human-made aerosols, due to reduced emissions during the ongoing global Covid-19 epidemic. Reduced aerosols will cause a boost in warming, but unfortunately global high-quality aerosol measurements are not being obtained.