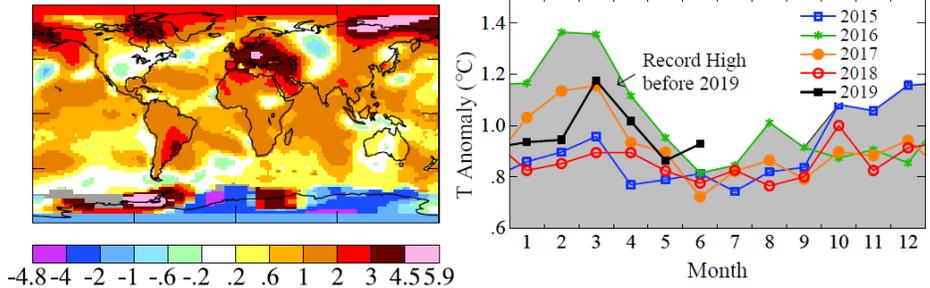


June 2019 Global Temperature Update

Surface Temperature relative to 1951-1980 Mean (°C)

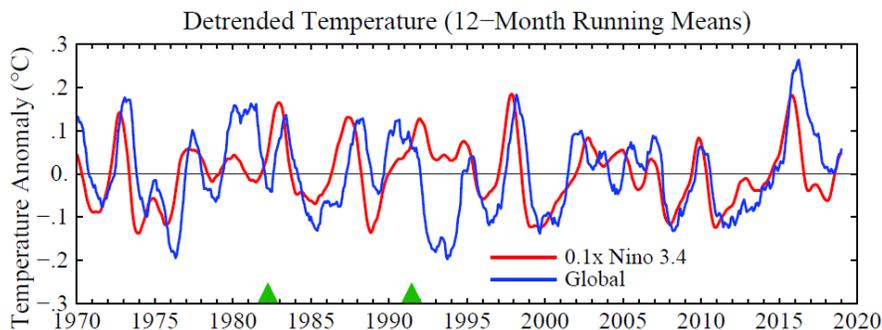
June 2019 0.93



June 2019 was, easily, the warmest June in the period of instrumental temperature measurements, as shown in the figure above. June 2019 was +0.93°C, exceeding the prior record of +0.82°C in June 2016, both measured relative to the 1951-1980 base period. The contiguous U.S. and north-central Eurasia were cool, but parts of Europe had record heat waves and Alaska had many [wildfires](#).

Northern Hemisphere summer is the time of least natural variability of global temperature, and June in particular has low variability, so does this record June temperature presage still higher global annual temperature records?¹

No and yes. Increasing greenhouse gases and Earth’s present energy imbalance continuously tend to push decadal temperature higher, but El Niño variability dominates global temperature change on the time scale of a few years. June got a positive kick from the current weak El Niño. The impact of El Niño on global temperature lags El Niño by 4½ months (see figure below). The current weak El Niño is fizzling out already, so the annual 2019 temperature is going to be high, but probably second to 2016.



Comparison of Niño 3.4 and global temperatures. Correlation is 61% with global temperature lagging Niño 3.4 temperature by 4.5 months.

¹ The Northern Hemisphere is mostly land, and temperature over land in the cool seasons fluctuates a lot depending on the weather, i.e., whether the wind has a more northerly or southerly component. Thus large-scale Rossby waves, waggles in the jet stream, cause big fluctuations in land temperature during NH winter, when there is a huge equator-to-pole temperature gradient.