

2020 could be a new record global surface heating year

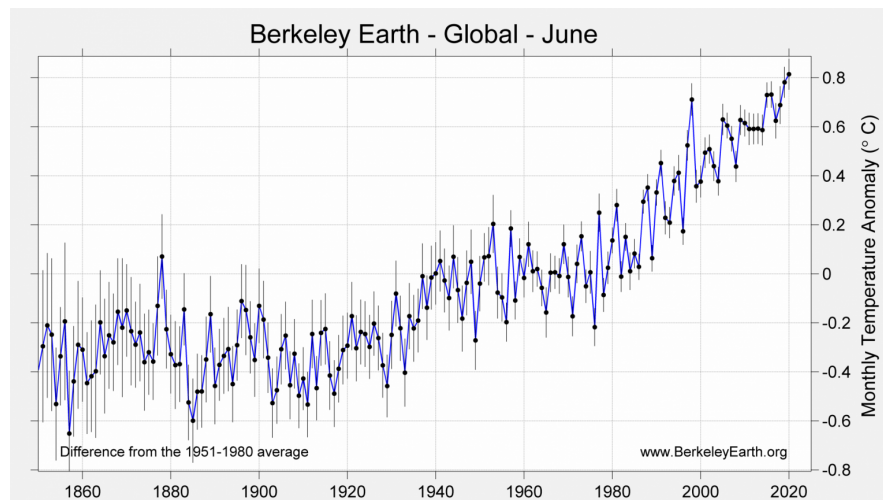
2020 January to June Summary by Berkeley Earth

Likelihood of final 2020 ranking of 2020 being a new record year, based on January to June:

- 1st place (45%)
- 2nd place (45%)
- Top 3 overall (>99%)

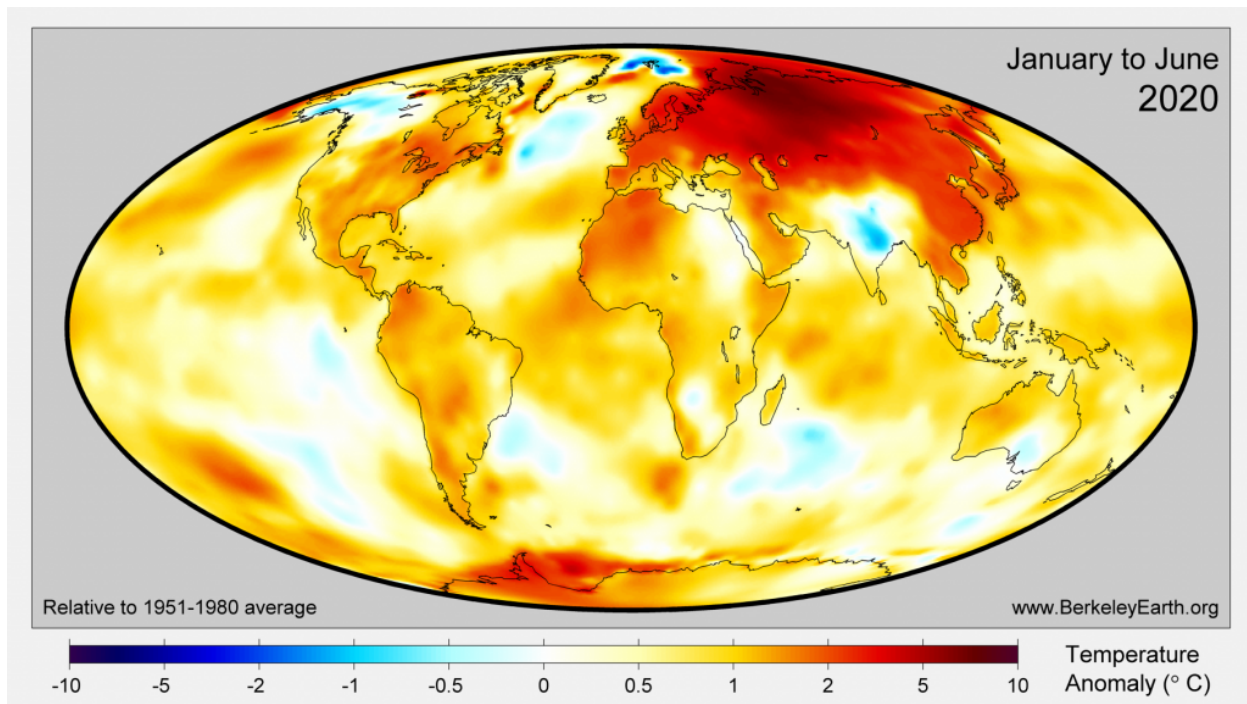
2020 had the warmest April, May and June on record

Globally, June 2020 is estimated to have been the warmest June since records began in 1850, exceeding the previously warmest year in 2019. However, the margin of difference between 2020 and 2019 is small compared to the estimated uncertainties. As a result June 2020 and June 2019 may be regarded as essentially tied for the warmest June. 2020 has also had both the warmest April & May.

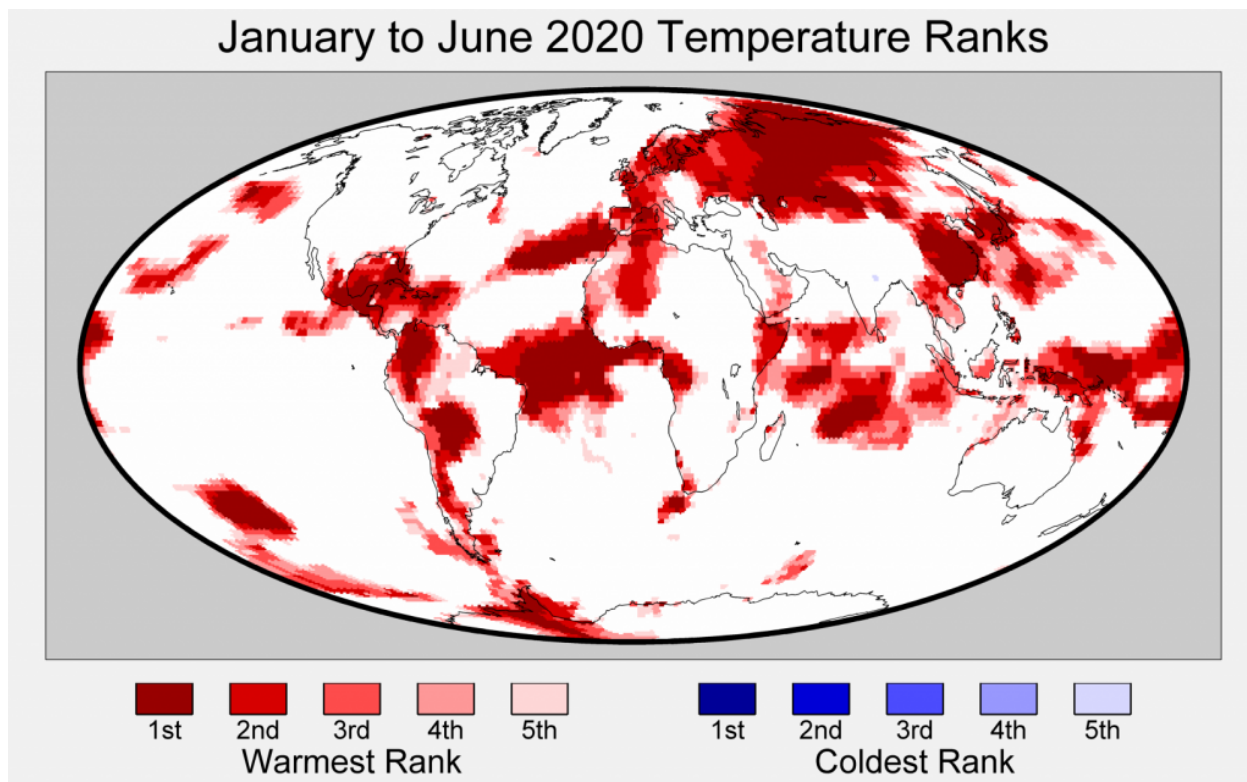


After 6 months, the Earth in 2020 has been marked by above average temperatures nearly everywhere, with especially extreme conditions across Asia. We estimate that the January to June average was record warm for 8.6% of the Earth, and appreciably above the 1951 to 1980 average for 85% of the Earth. Only, 1.4% of the Earth's surface was significantly cooler than the 1951 to 1980 average during the current January to June period, and no locations were record cool.

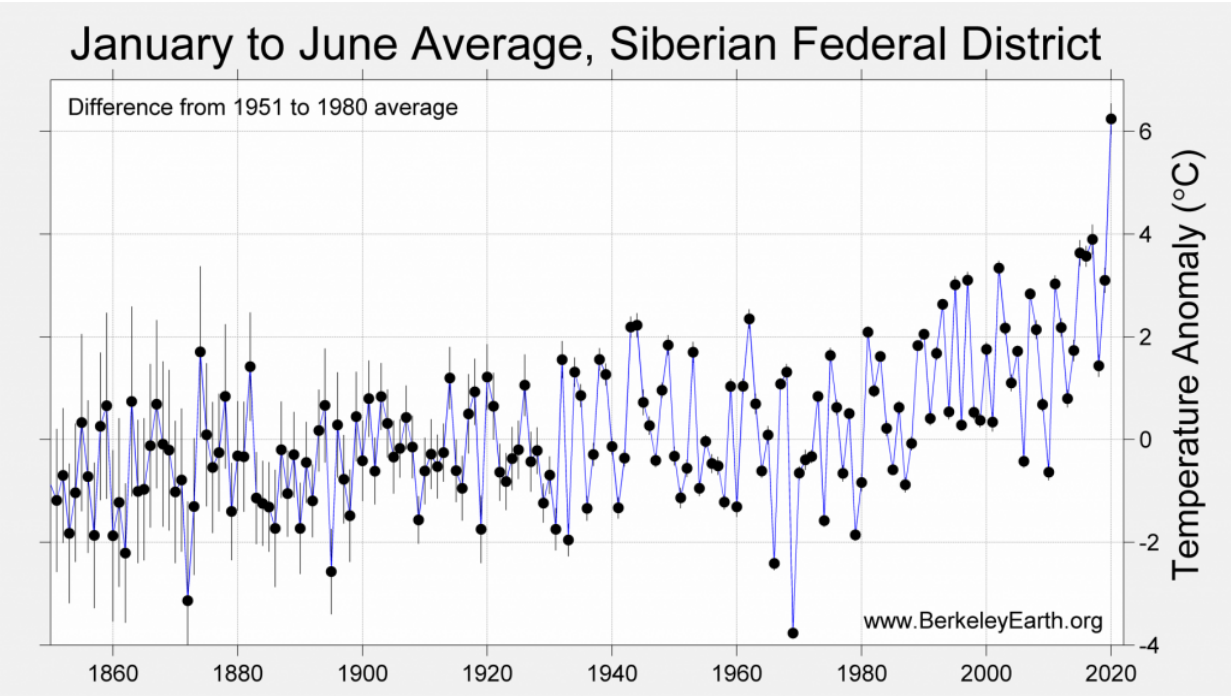
In addition, the January to June averages for Asia, Europe, and South America all set record highs.



Looking at regions where January to June temperature averages were either the top 5 warmest or the top 5 coldest observed, we note extensive regions with record or near-record warmth during the first half of the year and no regions of near-record cold.



The extensive, extreme warmth over Asia is especially noteworthy. The January to June temperature anomaly in the Siberian Federal District of Russia was more than 6 °C (11 °F) above the long-term average. This exceeds the previous record by more than 2 °C (3.5 °F). This an unprecedented 6-month heatwave. It was recently estimated that this warm period would be nearly impossible without the impact of global warming, and even with the impact of climate change remains a highly unlikely event.



Rest of 2020

Of the first six months of 2020, April, May, and June have each set a new record, while January to March were each no lower than the fourth warmest. Overall, the January to June average is essentially tied with 2016 as the warmest start to a year. In 2016 temperatures were boosted due to a massive El Niño event. It is remarkable that 2020 is approaching the same level of warmth despite the lack of El Niño conditions this year.



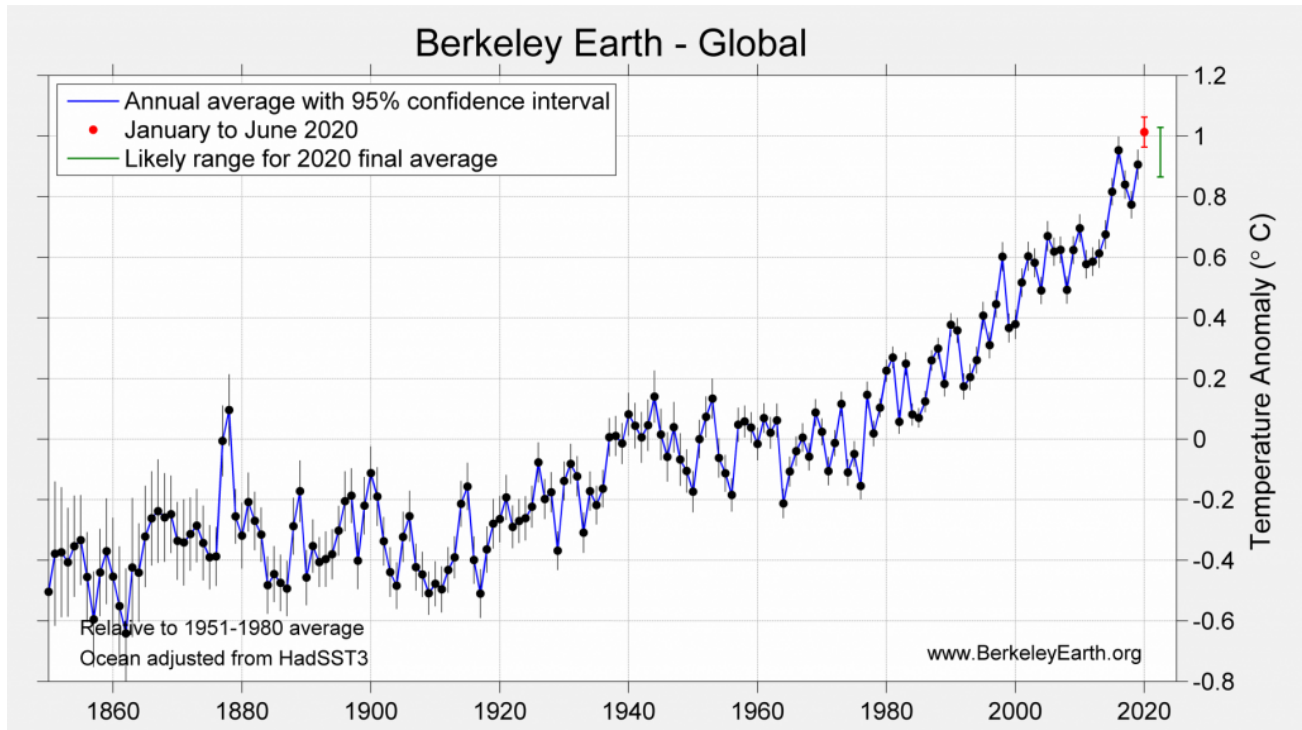
As suggested by the plot above, we would typically expect that the second half of the year to have slightly lower temperature anomalies than January to April, which is important in the context of estimating the likely range for final temperature anomalies in 2020.

With April, May, and June setting new records for monthly warmth, the projected warmth during the second half of the year remains quite high.

However, the emergence of a cool pattern over the Eastern Central Pacific and the increased likelihood of a La Niña event later this year suggests that temperatures at the end of 2020 may be cooler than otherwise expected. This reduces the likelihood of a record warm year.

The statistical approach that we use now believes that 2020 has an 45% likelihood of surpassing 2016 and becoming the warmest year that has been directly measured. This is a sharp departure from the previous forecast that placed the odds of a new record at 89%. We believe this decrease in likelihood is primarily related to the emerging La Niña, though we are surprised by the magnitude of this change and intend to investigate it further.

Regardless of whether a new record is set, it remains highly likely that 2020 will be one of the warmest years since 1850.



Likelihood of final 2020 ranking, based on January to June:

- 1st place (45%)
- 2nd place (45%)
- Top 3 overall (>99%)

Climate Emergency Institute, July