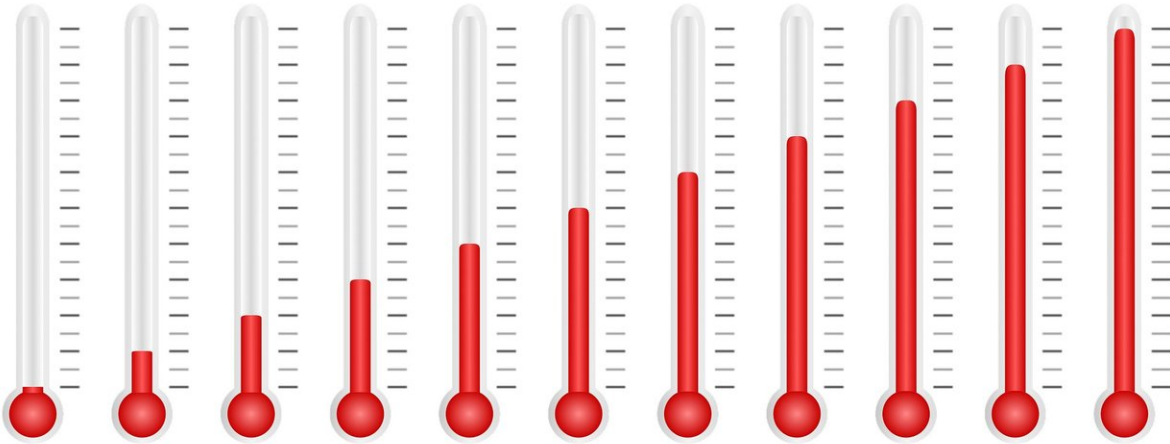


# NASA study verifies global warming trends

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A new study by researchers from NASA has verified the accuracy of recent global warming figures.

The team used measurements of the 'skin' temperature of the Earth taken by a satellite-based infrared measurement system called AIRS (Atmospheric Infra-Red Sounder) from 2003 to 2017.

They compared these with station-based analyses of [surface](#) air temperature anomalies—principally the Goddard Institute for Space Studies Surface Temperature Analysis (GISTEMP).

They found a high level of consistency between the two datasets over the past 15 years. Their results are published today in *Environmental Research Letters*.

Commenting on the study, lead author Dr. Joel Susskind, from NASA's Goddard Space Flight Center, said: "AIRS data complement GISTEMP because they are at a higher spatial resolution than GISTEMP, and have more complete global coverage.

"Both [data sets](#) demonstrate the earth's surface has been warming globally over this period, and that 2016, 2017, and 2015 have been the warmest years in the instrumental record, in that order.

"This is important because of the intense interest in the detail of how estimates of global and regional temperature change are constructed from surface temperature data, and how known imperfections in the raw data (due to station moves, gaps, instrument and practice changes, urban heat island effects) are handled."

AIRS data reflects skin temperature at the surface of the ocean, land, and snow/ice covered regions. Surface-based data are a blend of two metre surface air data anomalies over land, and bulk sea surface temperature anomalies in the ocean.

To compare the two, the researchers constructed monthly grid point climatologies for each calendar month and for each set of data, by averaging the monthly values over 2003 to 2017, with anomalies for a given month, in a given year, defined as the difference of the grid point value for that month from its monthly climatology.

Co-author Dr. Gavin Schmidt, from NASA's Goddard Institute for Space Studies, said: "Interestingly, our findings revealed that the surface-based data sets may be underestimating the temperature changes in the

Arctic. This means the warming taking place at the poles may be happening more quickly than previously thought.

"Our work also shows that complementary satellite-based surface [temperature](#) analyses serve as an important validation of surface-based estimates. They may point the way to make improvements in surface-based products that can perhaps be extended back many decades."

**More information:** Recent Global Warming as Confirmed by AIRS, *Environmental Research Letters* (2019). [DOI: 10.1088/1748-9326/aafd4e](https://doi.org/10.1088/1748-9326/aafd4e)

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