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Global Temperature Report: January 2025 with Version 6.1

Brought to you by *The Earth System Science Center* at
The University of Alabama in Huntsville

Global Temperature

- Global climate trend since Dec. 1 1978: +0.16 C per decade

January Temperatures v6.1 (preliminary)

- Global composite temp: +0.35°C (+0.64°F) above the seasonal average
- Northern Hemisphere: +0.52°C (+0.93 °F) above seasonal average
- Southern Hemisphere: +0.19°C (+0.34°F) above seasonal average
- Tropics: +0.09°C (+0.16°F) above seasonal average

December Temperatures v6.1 (final)

- Global composite temp: +0.30°C (+0.54°F) above the seasonal average
- Northern Hemisphere: +0.45°C (+0.81 °F) above seasonal average
- Southern Hemisphere: +0.15°C (+0.28°F) above seasonal average
- Tropics: +0.19°C (+0.34°F) above seasonal average

Notes on data released **Feb 3, 2026**

The global mean January temperature departure from the seasonal average increased slightly to +0.35°C (+0.64°F) from +0.30°C (+0.54°F) in December. However, the warmer-than-average conditions were mainly concentrated in the Arctic and the Tibetan Plateau regions. The 47+ year trend currently stands at +0.156°C/decade but is rounded up to +0.16°C/decade. We estimate the error range of this trend over 46+ years at ±0.03°C/decade, which renders the third decimal inconsequential.

Temperatures in the tropical atmosphere continued to decline in January due to La Niña-induced cooling, which remains present in the tropical Pacific. La Niña conditions are likely (75% chance) to transition to "neutral conditions" during January-March 2026 timeframe. For the latest information on the El Niño/La Niña situation, see:

https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf

The planet's warmest atmospheric temperature departure in January occurred in northern Greenland at +6.83°C (+12.29°F). Other notably warm regions included Alaska, the northwestern United States, eastern Russia, and western China.

The coolest departure from average was found near Hiawatha Township in Michigan's Upper Peninsula, with a reading of -2.65°C (-4.77°F). Colder-than-average temperatures were also observed across Europe and much of Russia.

After experiencing the warmest December on record, the conterminous United States saw a marked shift to a slightly warmer-than-average January, with temperatures averaging +0.30°C (+0.54°F) above the seasonal mean. The western half of the U.S. experienced the above-normal temperatures, while the eastern half recorded below-normal temperatures. Alaska was also warmer than average, resulting in a 49-state average temperature of +0.49°C (+0.88°F) above normal. [We don't include Hawaii in the US results because its land area is less than that of one satellite grid square, so it would have virtually no impact on the overall national results.]

Please note that we provide these data out of our own initiative, and are only able to produce these updates at times convenient to our working schedules.

Background notes.

New v6.1 due to termination of NOAA-19 in 2021 and adding METOP-C.

https://www.drroyspencer.com/2024/11/uah-global-temperature-update-for-october-2024-truncation-of-the-noaa-19-satellite-record/

New Reference Base Jan 2021 and forward.

As noted in the Jan 2021 GTR, the situation comes around every 10 years when the reference period or "30-year normal" that we use to calculate the departures is redefined. With that, we have averaged the absolute temperatures over the period 1991-2020, in accordance with the World Meteorological Organization's guidelines, and use this as the new base period. This allows the anomalies to relate more closely to the experience of the average person, i.e. the climate of the last 30 years. Due to the rising trend of global and regional temperatures, the new normals are a little warmer than before, i.e. the global average temperature for Januaries for 1991-2020

is 0.14 °C warmer than the average for Januaries during 1981-2010. So, the new departures from this now warmer average will appear to be cooler, but this is an artifact of simply applying a new base period. It is important to remember that changes over time periods, such as a trend value or the relative difference of one year to the next, will not change. Think about it this way, all we've done is to take the entire time series and shifted it down a little.

To-Do List:

There has been a delay in our ability to utilize and merge the new generation of microwave sensors (ATMS) on the NPP and JPSS satellites, but we are renewing our efforts as Dr. Braswell is now focused on this task. The delay is due to the incredibly slow rate at which the data may be accessed. In addition, the current non-drifting satellite operated by the Europeans, MetOP-B, has not yet been adjusted or "neutralized" for its seasonal peculiarities related to its unique equatorial crossing time (0930). While these MetOP-B peculiarities do not affect the long-term global trend, they do introduce error within a particular year in specific locations over land. We have now added MetOP-C to replace the truncated data from NOAA-19.

Dr. Christy and Dr. Roy Spencer, an ESSC principal scientist, use data gathered by advanced microwave sounding units on NOAA, NASA and European satellites to produce temperature readings for almost all regions of the Earth. This includes remote desert, ocean and rain forest areas where reliable climate data are not otherwise available. Dr. Danny Braswell has reconstituted the code which converts the satellite radiances to temperature values and Dr. Rob Junod prepares the monthly reports as of October 2025.

The satellite-based instruments measure the temperature of the atmosphere from the surface up to an altitude of about nine kilometers above sea level. Once the monthly temperature data are collected and processed, they are placed in a "public" computer file for immediate access by atmospheric scientists in the U.S. and abroad.

- The complete version 6.1 lower troposphere dataset is available here: http://www.nsstc.uah.edu/data/msu/v6.1/tlt/uahncdc_lt_6.1.txt
- Archived color maps of local temperature anomalies are available on-line at: http://nsstc.uah.edu/climate/

Neither Christy nor Spencer receives any research support or funding from oil, coal or industrial companies or organizations, or from any private or special interest groups. All of their climate research funding comes from federal and state grants or contracts.

Ancillary Figures

Figure 1. Lower tropospheric temperature anomalies for January 2026. Contour interval 1.0°C

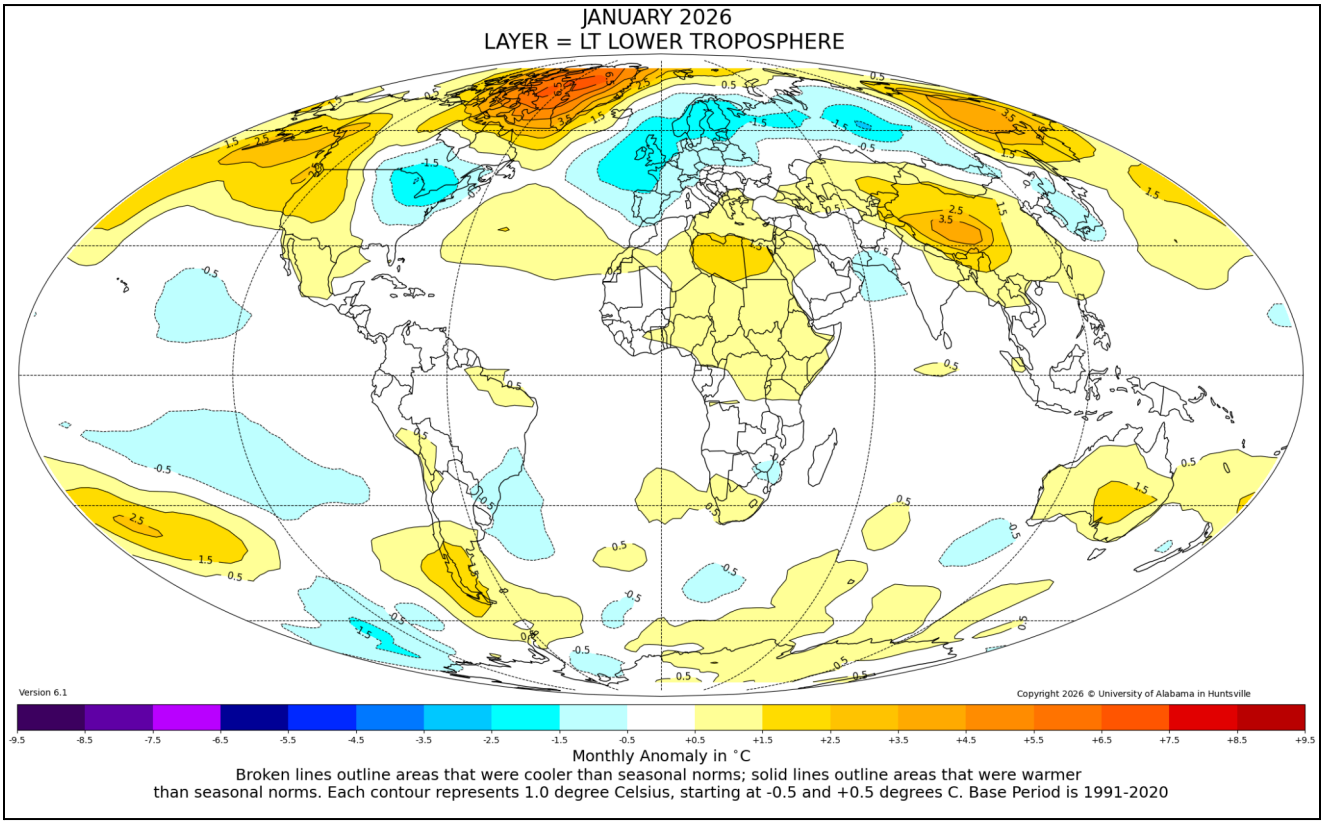
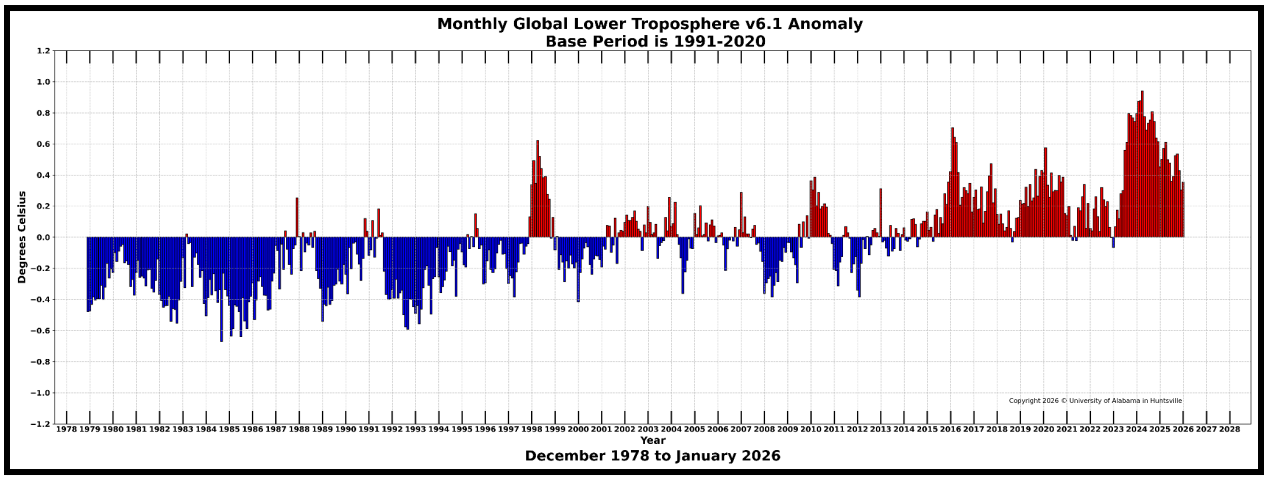


Figure 2. Bar chart of global monthly lower tropospheric temperature anomalies



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