

Global temperature, 1880-2025

Global mean surface temperature has risen by about 1.2 °C since the late 19th century. 2024 was the warmest year in the NASA GISTEMP record.

Key figures

+1.29 °C

Warmest year on record: 2024

Annual anomaly vs 1951-1980

10 of 10

The ten warmest years all fall in 2015-2025

GISTEMP v4, 1880-2025

+1.24 °C

Rise of the 10-year mean

1880-1889 to 2016-2025

FIGURE 1

Global temperature anomaly per year, 1880-2025

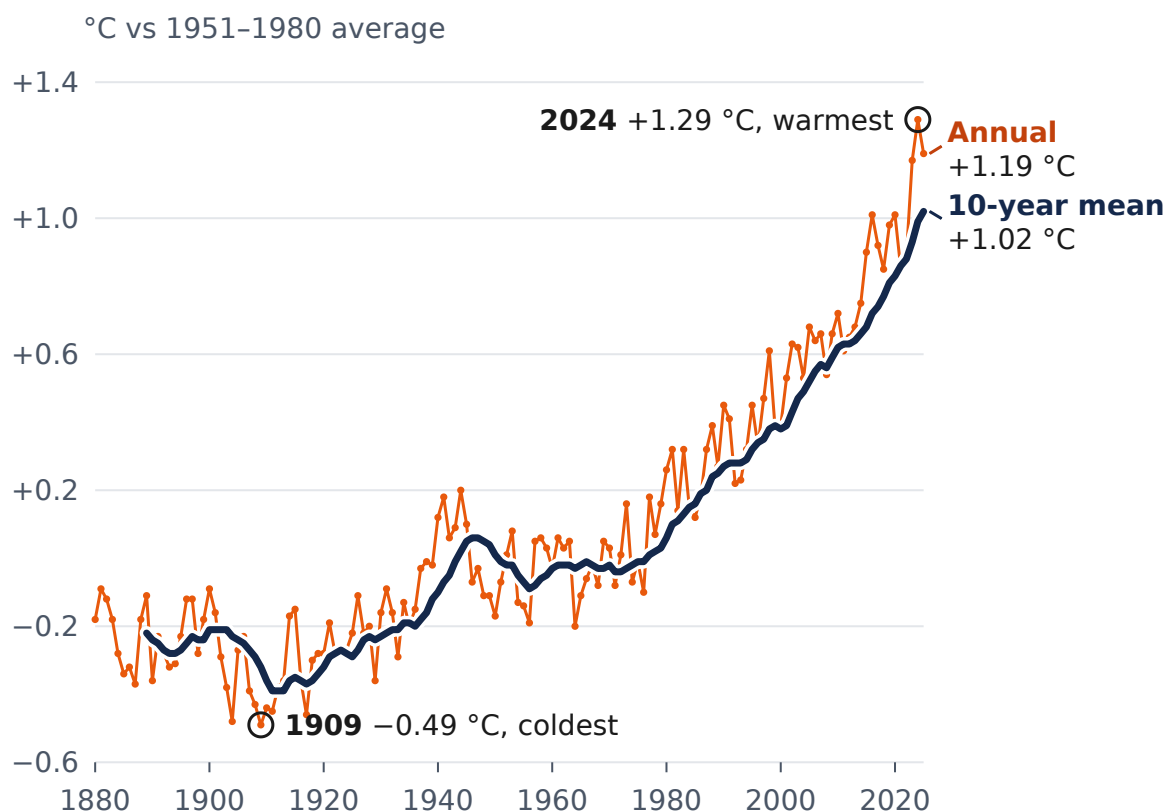


Chart description

The chart shows the global mean surface temperature anomaly for every year from 1880 to 2025 (146 years), in degrees Celsius relative to the 1951–1980 average (NASA GISTEMP v4). A second line shows the 10-year trailing mean (each year averaged with the nine years before it).

From 1880 to 1909 every annual value lies between $-0.49\text{ }^{\circ}\text{C}$ and $-0.09\text{ }^{\circ}\text{C}$; the coldest year in the record is 1909 at $-0.49\text{ }^{\circ}\text{C}$. Temperatures rise to around the 1951–1980 average by the 1940s, and between 1940 and 1979 the 10-year mean stays between $-0.10\text{ }^{\circ}\text{C}$ and $+0.06\text{ }^{\circ}\text{C}$. 1976 is the last year below the average.

After the mid-1970s the rise is steady. The annual value first exceeds $+0.5\text{ }^{\circ}\text{C}$ in 1998 and $+1.0\text{ }^{\circ}\text{C}$ in 2016. The warmest year is 2024 at $+1.29\text{ }^{\circ}\text{C}$, followed by 2025 at $+1.19\text{ }^{\circ}\text{C}$; all ten warmest years fall in 2015–2025. The 10-year mean rises from $-0.22\text{ }^{\circ}\text{C}$ (1880–1889) to $+1.02\text{ }^{\circ}\text{C}$ (2016–2025), an increase of $1.24\text{ }^{\circ}\text{C}$.

▼ Data table for figure 1 (146 years)

Global temperature anomaly per year, $^{\circ}\text{C}$ relative to 1951–1980 (NASA GISTEMP v4).
The 10-year mean starts in 1889 (n/a = not available).

Year	Annual anomaly ($^{\circ}\text{C}$)	10-year trailing mean ($^{\circ}\text{C}$)
1880	-0.18	n/a
1881	-0.09	n/a
1882	-0.12	n/a
1883	-0.18	n/a
1884	-0.28	n/a
1885	-0.34	n/a
1886	-0.32	n/a
1887	-0.37	n/a
1888	-0.18	n/a
1889	-0.11	-0.22
1890	-0.36	-0.24

Year	Annual anomaly (°C)	10-year trailing mean (°C)
1891	-0.23	-0.25
1892	-0.28	-0.27
1893	-0.32	-0.28
1894	-0.31	-0.28
1895	-0.23	-0.27
1896	-0.12	-0.25
1897	-0.12	-0.23
1898	-0.28	-0.24
1899	-0.18	-0.24
1900	-0.09	-0.21
1901	-0.16	-0.21
1902	-0.29	-0.21
1903	-0.38	-0.21
1904	-0.48	-0.23
1905	-0.27	-0.24
1906	-0.23	-0.25
1907	-0.39	-0.27
1908	-0.43	-0.29
1909	-0.49	-0.32
1910	-0.44	-0.36
1911	-0.45	-0.39
1912	-0.38	-0.39
1913	-0.36	-0.39
1914	-0.17	-0.36
1915	-0.15	-0.35
1916	-0.36	-0.36
1917	-0.46	-0.37

Year	Annual anomaly (°C)	10-year trailing mean (°C)
1918	-0.30	-0.36
1919	-0.28	-0.34
1920	-0.28	-0.32
1921	-0.19	-0.29
1922	-0.28	-0.28
1923	-0.27	-0.27
1924	-0.27	-0.28
1925	-0.22	-0.29
1926	-0.11	-0.27
1927	-0.22	-0.24
1928	-0.20	-0.23
1929	-0.36	-0.24
1930	-0.16	-0.23
1931	-0.09	-0.22
1932	-0.16	-0.21
1933	-0.29	-0.21
1934	-0.13	-0.19
1935	-0.20	-0.19
1936	-0.15	-0.20
1937	-0.03	-0.18
1938	-0.01	-0.16
1939	-0.02	-0.12
1940	+0.12	-0.10
1941	+0.18	-0.07
1942	+0.06	-0.05
1943	+0.09	-0.01
1944	+0.20	+0.02

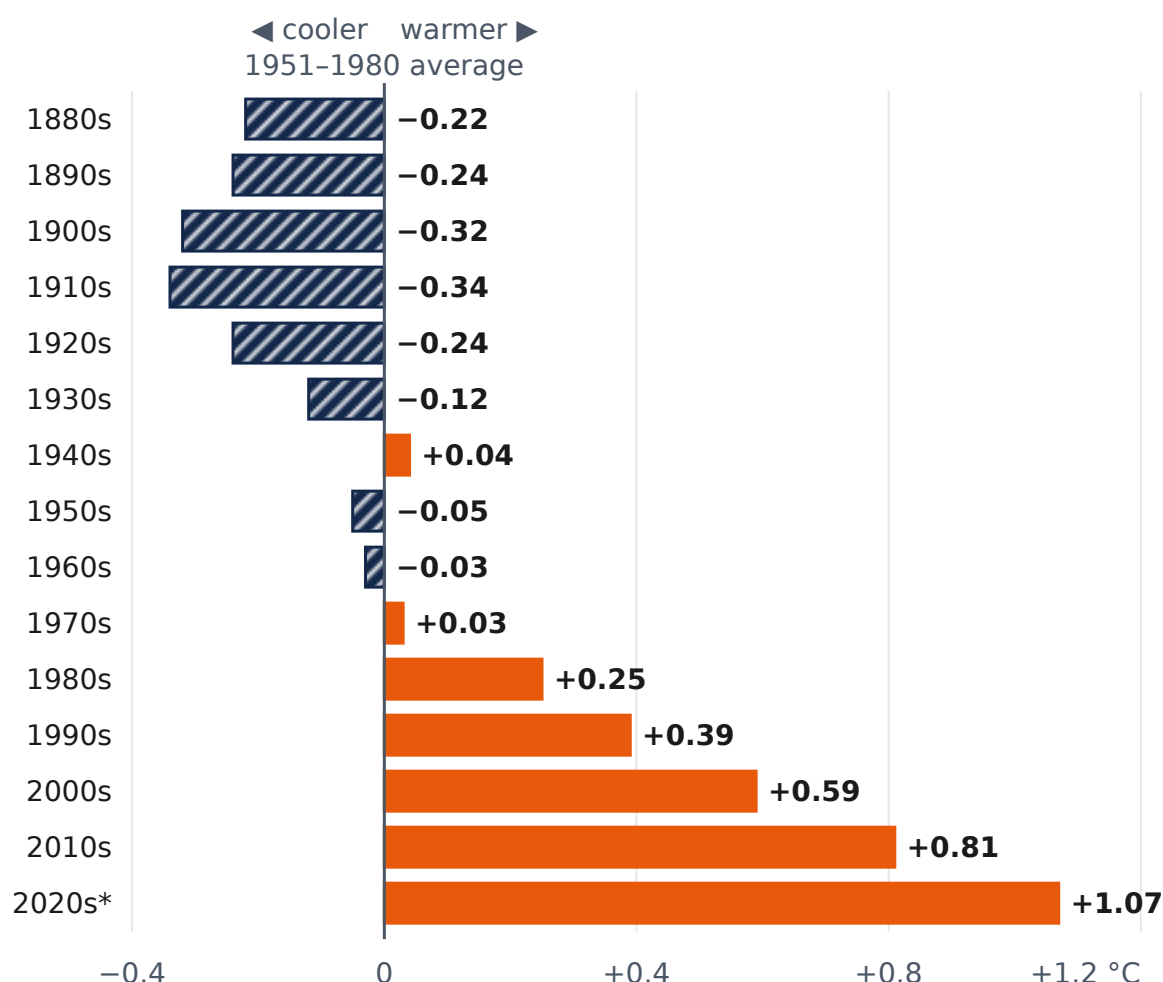
Year	Annual anomaly (°C)	10-year trailing mean (°C)
1945	+0.10	+0.05
1946	-0.07	+0.06
1947	-0.03	+0.06
1948	-0.11	+0.05
1949	-0.11	+0.04
1950	-0.17	+0.01
1951	-0.07	-0.01
1952	+0.01	-0.02
1953	+0.08	-0.02
1954	-0.13	-0.05
1955	-0.14	-0.07
1956	-0.19	-0.09
1957	+0.05	-0.08
1958	+0.06	-0.06
1959	+0.03	-0.05
1960	-0.03	-0.03
1961	+0.06	-0.02
1962	+0.03	-0.02
1963	+0.05	-0.02
1964	-0.20	-0.03
1965	-0.11	-0.02
1966	-0.06	-0.01
1967	-0.02	-0.02
1968	-0.08	-0.03
1969	+0.05	-0.03
1970	+0.03	-0.02
1971	-0.08	-0.04

Year	Annual anomaly (°C)	10-year trailing mean (°C)
1972	+0.01	-0.04
1973	+0.16	-0.03
1974	-0.07	-0.02
1975	-0.01	-0.01
1976	-0.10	-0.01
1977	+0.18	+0.01
1978	+0.07	+0.02
1979	+0.16	+0.03
1980	+0.26	+0.06
1981	+0.32	+0.10
1982	+0.14	+0.11
1983	+0.32	+0.13
1984	+0.15	+0.15
1985	+0.12	+0.16
1986	+0.18	+0.19
1987	+0.32	+0.20
1988	+0.39	+0.24
1989	+0.27	+0.25
1990	+0.45	+0.27
1991	+0.41	+0.28
1992	+0.22	+0.28
1993	+0.23	+0.28
1994	+0.32	+0.29
1995	+0.45	+0.32
1996	+0.33	+0.34
1997	+0.47	+0.35
1998	+0.61	+0.38

Year	Annual anomaly (°C)	10-year trailing mean (°C)
1999	+0.38	+0.39
2000	+0.39	+0.38
2001	+0.53	+0.39
2002	+0.63	+0.43
2003	+0.62	+0.47
2004	+0.53	+0.49
2005	+0.68	+0.52
2006	+0.64	+0.55
2007	+0.66	+0.57
2008	+0.54	+0.56
2009	+0.66	+0.59
2010	+0.72	+0.62
2011	+0.61	+0.63
2012	+0.65	+0.63
2013	+0.68	+0.64
2014	+0.75	+0.66
2015	+0.90	+0.68
2016	+1.01	+0.72
2017	+0.92	+0.74
2018	+0.85	+0.77
2019	+0.98	+0.81
2020	+1.01	+0.83
2021	+0.85	+0.86
2022	+0.89	+0.88
2023	+1.17	+0.93
2024	+1.29	+0.99
2025	+1.19	+1.02

FIGURE 2

Average temperature anomaly per decade



* 2020s = 2020-2025 (6 years).

Chart description

Decade averages of the annual GISTEMP values, in °C relative to 1951-1980. The six decades from the 1880s to the 1930s are all below the average, the coolest being the 1910s at -0.34 °C. The 1940s ($+0.04$ °C), 1950s (-0.05 °C), 1960s (-0.03 °C) and 1970s ($+0.03$ °C) are close to the average.

Every decade since the 1970s is warmer than the one before: 1980s $+0.25$ °C, 1990s $+0.39$ °C, 2000s $+0.59$ °C, 2010s $+0.81$ °C, 2020s $+1.07$ °C. The 2020s value covers only 6 years (2020-2025).

▼ Data table for figure 2 (15 decades)

Average anomaly per decade, °C relative to 1951–1980.

Decade	Years	Years with data	Mean anomaly (°C)
1880s	1880–1889	10	-0.22
1890s	1890–1899	10	-0.24
1900s	1900–1909	10	-0.32
1910s	1910–1919	10	-0.34
1920s	1920–1929	10	-0.24
1930s	1930–1939	10	-0.12
1940s	1940–1949	10	+0.04
1950s	1950–1959	10	-0.05
1960s	1960–1969	10	-0.03
1970s	1970–1979	10	+0.03
1980s	1980–1989	10	+0.25
1990s	1990–1999	10	+0.39
2000s	2000–2009	10	+0.59
2010s	2010–2019	10	+0.81
2020s	2020–2025	6	+1.07

Source

GISTEMP Team, GISS Surface Temperature Analysis (GISTEMP v4), NASA Goddard Institute for Space Studies (data.giss.nasa.gov/gistemp), public domain; annual series taken from the [datasets/global-temp](#) data package (file data/annual.csv). Values rounded to 0.01 °C. [Download the data \(CSV\)](#).

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