
Contents	Temperature records, conventional graph
<u>Metadata</u>	Information about this file
<u>Alabama</u>	Annual average land and ocean temperatures from Alabama University, base period 1981-2010, without smooth, worldwide, 1978-2019, (degrees celsius)
<u>NASA</u>	Annual average land and ocean temperatures from NASA, base period 1951-1980, with the five-year lowess smooth, worldwide, 1880-2018, (degrees celsius)
<u>Met</u>	Annual average land and ocean temperatures from the Met Office, base period 1961-1990, with the 11-year smooth, worldwide, 1850-2018, (degrees celsius)

<http://www.dannydorling.org/>

Metadata

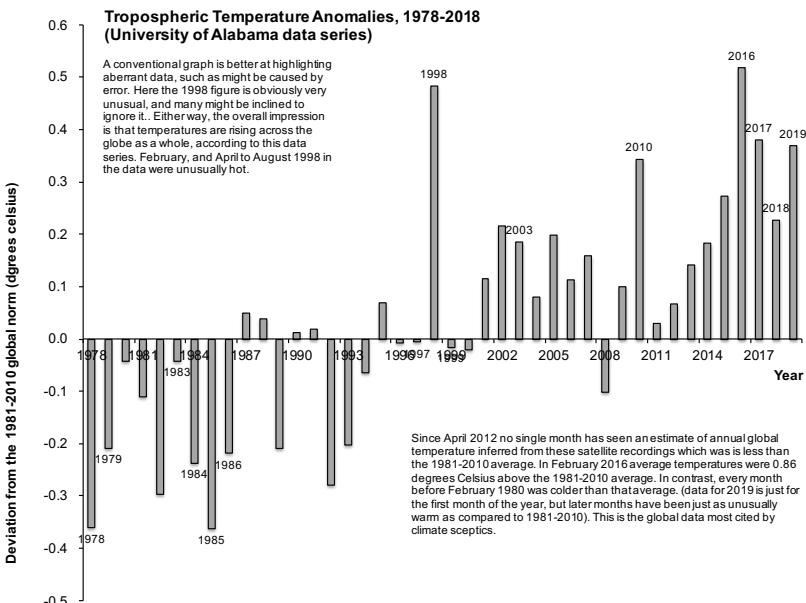
These reference tables contain the same statistics for world average annual temperatures as the previous three files, but shown on more conventional graphs. Now the x-axis is the year (rather than the absolute change). The y-axis is the anomaly (variation from the average for the various baseline periods) as before. Readers can see the differences by comparing graphs in this file with the ones in the previous three files (Fig17-19).

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Annual average land and ocean temperatures from Alabama University, base period 1981-2010, without smooth, worldwide, 1978-2019, (degrees celsius)

Source: Version 6.0 of the UAH Temperature Dataset Released: New LT Trend = +0.11 C/decade; <http://www.droyspencer.com/2015/04/version-6-0-of-the-uah-temperature-dataset-released-new-lt-trend-0-11-cdecade/>; 24 June 2019
Frequency: Yearly, End of period

Observation date	Absolute change (degree celsius)	Non-Average (degree celsius)	Temperature anomaly (degree celsius)	Label
1978	0.1508	-0.36	-0.36	1978
1979	0.1588	-0.21	-0.21	1979
1980	0.0492	-0.04	-0.04	
1981	-0.1267	-0.11	-0.11	
1982	0.0346	-0.30	-0.30	
1983	0.0292	-0.04	-0.04	1983
1984	-0.1600	-0.24	-0.24	1984
1985	0.0096	-0.36	-0.36	1985
1986	0.2054	-0.22	-0.22	1986
1987	0.1288	0.05	0.05	
1988	-0.1292	0.04	0.04	
1989	-0.0133	-0.21	-0.21	
1990	0.1142	0.01	0.01	
1991	-0.1463	0.02	0.02	
1992	-0.1113	-0.28	-0.28	
1993	0.1079	-0.20	-0.20	
1994	0.1363	-0.06	-0.06	
1995	0.0283	0.07	0.07	
1996	-0.0375	-0.01	-0.01	
1997	0.2450	-0.01	-0.01	1997
1998	-0.0050	0.48	0.48	1998
1999	-0.2517	-0.02	-0.02	1999
2000	0.0658	-0.02	-0.02	
2001	0.1188	0.12	0.12	
2002	0.0350	0.22	0.22	
2003	-0.0679	0.19	0.19	2003
2004	0.0062	0.08	0.08	
2005	0.0158	0.20	0.20	
2006	-0.0196	0.11	0.11	
2007	-0.1071	0.16	0.16	
2008	-0.0300	-0.10	-0.10	
2009	0.2225	0.10	0.10	
2010	-0.0346	0.34	0.34	2010
2011	-0.1379	0.03	0.03	
2012	0.0563	0.07	0.07	
2013	0.0579	0.14	0.14	
2014	0.0650	0.18	0.18	
2015	0.1675	0.27	0.27	
2016	0.0542	0.52	0.52	2016
2017	-0.1458	0.38	0.38	2017
2018	-0.0054	0.23	0.23	2018
2019	0.1433	0.37	0.37	2019

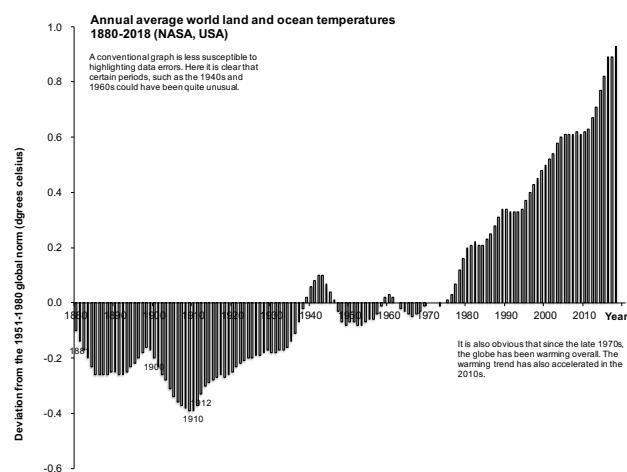


Annual average land and ocean temperatures from NASA, base period 1951-1980, with the five-year lowess smooth, worldwide, 1880-2018, (degrees celsius)

Source: GISS Surface Temperature Analysis (v4), National Aeronautics and Space Administration; <https://data.giss.nasa.gov/gistemp/graphs/>; 24 June 2019

Frequency: Yearly, End of period

Observation date	Absolute change (degree celsius)	Temperature anomaly (degree celsius)	Label
1880	-0.0400	-0.10	
1881	-0.0360	-0.14	1881
1882	-0.0300	-0.17	
1883	-0.0300	-0.20	
1884	-0.0300	-0.23	
1885	-0.0150	-0.26	
1886	0.0000	-0.26	
1887	0.0000	-0.26	
1888	0.0050	-0.26	
1889	0.0050	-0.25	
1890	-0.0050	-0.25	
1891	-0.0050	-0.26	
1892	0.0050	-0.26	
1893	0.0150	-0.25	
1894	0.0150	-0.23	
1895	0.0150	-0.22	
1896	0.0200	-0.20	
1897	0.0200	-0.18	
1898	0.0050	-0.16	
1899	-0.0200	-0.17	
1900	-0.0300	-0.20	1900
1901	-0.0300	-0.23	
1902	-0.0250	-0.26	
1903	-0.0250	-0.28	
1904	-0.0300	-0.31	
1905	-0.0250	-0.34	
1906	-0.0160	-0.36	
1907	-0.0100	-0.37	
1908	-0.0100	-0.38	
1909	-0.0050	-0.39	
1910	0.0100	-0.39	1910
1911	0.0300	-0.37	
1912	0.0300	-0.33	1912
1913	0.0200	-0.30	
1914	0.0100	-0.29	
1915	0.0100	-0.28	
1916	0.0100	-0.27	
1917	0.0000	-0.26	
1918	0.0000	-0.27	
1919	0.0100	-0.26	
1920	0.0100	-0.25	
1921	0.0150	-0.25	
1922	0.0100	-0.22	
1923	0.0100	-0.21	
1924	0.0050	-0.20	
1925	0.0050	-0.20	
1926	0.0050	-0.19	
1927	0.0050	-0.19	
1928	0.0100	-0.18	
1929	0.0050	-0.17	
1930	-0.0050	-0.18	
1931	0.0050	-0.18	
1932	0.0050	-0.17	
1933	0.0050	-0.17	
1934	0.0150	-0.16	
1935	0.0250	-0.14	1935
1936	0.0350	-0.11	
1937	0.0450	-0.07	
1938	0.0450	-0.02	
1939	0.0400	0.02	
1940	0.0300	0.06	1940
1941	0.0200	0.08	
1942	0.0100	0.10	
1943	-0.0150	0.10	
1944	-0.0300	0.07	
1945	-0.0300	0.06	1945
1946	-0.0350	0.04	
1947	-0.0400	0.03	
1948	-0.0250	0.07	
1949	0.0000	0.08	
1950	0.0050	0.07	
1951	-0.0050	0.07	
1952	-0.0050	0.08	
1953	0.0050	0.08	
1954	0.0100	0.07	
1955	0.0050	0.06	
1956	0.0100	0.06	
1957	0.0250	0.04	
1958	0.0300	0.01	
1959	0.0200	0.02	
1960	0.0000	0.03	1960
1961	<-0.0150	0.02	
1962	-0.0200	0.00	
1963	-0.0150	-0.02	
1964	-0.0100	-0.03	
1965	-0.0100	-0.04	
1966	0.0000	-0.05	
1967	0.0100	-0.04	
1968	0.0150	-0.03	
1969	0.0150	-0.01	
1970	0.0050	0.00	
1971	0.0000	0.00	
1972	-0.0050	0.00	
1973	0.0000	-0.01	
1974	0.0100	0.00	
1975	0.0150	0.01	1975
1976	0.0300	0.03	
1977	0.0450	0.07	
1978	0.0450	0.12	1978
1979	0.0400	0.16	
1980	0.0250	0.20	
1981	0.0100	0.21	
1982	0.0000	0.22	1982
1983	-0.0050	0.21	
1984	0.0100	0.21	
1985	0.0200	0.23	
1986	0.0250	0.25	
1987	0.0300	0.28	1987
1988	0.0300	0.31	
1989	0.0150	0.34	
1990	-0.0050	0.34	1990
1991	-0.0050	0.33	
1992	0.0000	0.33	
1993	0.0050	0.33	
1994	0.0200	0.34	
1995	0.0300	0.37	1995
1996	0.0300	0.40	
1997	0.0250	0.43	
1998	0.0250	0.45	
1999	0.0250	0.48	
2000	0.0200	0.50	2000
2001	0.0200	0.52	
2002	0.0300	0.54	
2003	0.0300	0.55	
2004	0.0150	0.60	
2005	0.0050	0.61	
2006	0.0000	0.61	
2007	0.0050	0.61	
2008	0.0000	0.62	2008
2009	0.0000	0.61	
2010	0.0100	0.62	2010
2011	0.0250	0.63	2011
2012	0.0400	0.67	2012
2013	0.0500	0.71	
2014	0.0550	0.77	
2015	0.0600	0.82	2015
2016	0.0350	0.89	2016
2017	0.0200	0.89	2017
2018	0.0400	0.93	2018



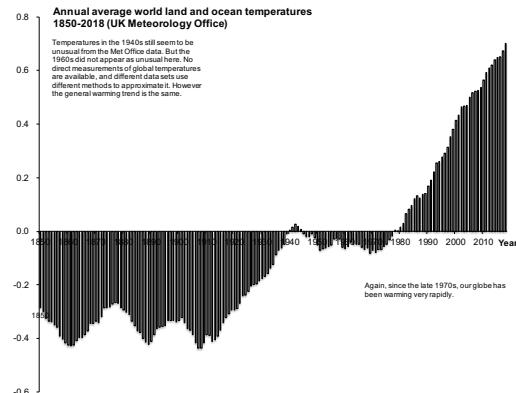
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Annual average land and ocean temperatures from the Met Office, base period 1961-1990, with the 11-year smooth, worldwide, 1850-2016, (degrees celsius)

Source: Coverage bias in the HadCRUT4 temperature record, Kevin Cowtan and Robert Way; http://www-users.york.ac.uk/~kdc3/papers/coverage2013/had4_krig_annual_v2_0_0.txt; 24 June 2019

Frequency: Yearly, End of period

Observation date	Absolute change (degree celsius)	Average over 11 years (degree celsius)	Temperature anomaly (degree celsius)	Label
1850	-0.0119	-0.29	-0.29	1850
1851	-0.0188	-0.30	-0.22	
1852	-0.0170	-0.32	-0.26	
1853	-0.0067	-0.34	-0.32	
1854	-0.0068	-0.34	-0.30	
1855	-0.0100	-0.35	-0.26	
1856	-0.0210	-0.36	-0.39	
1857	-0.0223	-0.39	-0.49	
1858	-0.0130	-0.40	-0.42	
1859	-0.0109	-0.42	-0.36	
1860	-0.0061	-0.42	-0.46	
1861	-0.0012	-0.43	-0.49	
1862	0.0105	-0.43	-0.50	
1863	0.0145	-0.41	-0.39	
1864	0.0059	-0.40	-0.48	
1865	0.0051	-0.40	-0.34	
1866	0.0122	-0.39	-0.33	
1867	0.0208	-0.37	-0.36	
1868	0.0132	-0.35	-0.28	1872
1869	0.0048	-0.35	-0.31	
1870	0.0025	-0.34	-0.34	
1871	0.0082	-0.34	-0.36	
1872	0.0270	-0.32	-0.32	
1873	0.0175	-0.29	-0.30	
1874	0.0017	-0.28	-0.39	
1875	0.0061	-0.28	-0.38	
1876	0.0087	-0.27	-0.39	
1877	0.0023	-0.27	-0.34	
1878	-0.0103	-0.27	0.00	
1879	-0.0136	-0.29	-0.26	
1880	-0.0079	-0.29	-0.29	
1881	-0.0082	-0.30	-0.23	1881
1882	-0.0165	-0.31	-0.29	
1883	-0.0213	-0.33	-0.34	
1884	-0.0185	-0.35	-0.50	
1885	-0.0125	-0.37	-0.46	
1886	-0.0146	-0.38	-0.45	
1887	-0.0181	-0.40	-0.49	
1888	-0.0102	-0.42	-0.34	
1889	-0.0024	-0.42	-0.23	
1890	0.0180	-0.41	-0.46	
1891	0.0231	-0.39	-0.37	
1892	0.0129	-0.36	-0.47	
1893	0.0041	-0.36	-0.44	
1894	0.0030	-0.36	-0.41	
1895	0.0115	-0.35	-0.38	
1896	0.0098	-0.33	-0.21	
1897	0.0001	-0.33	-0.22	
1898	-0.0025	-0.33	-0.45	
1899	0.0000	-0.34	-0.30	
1900	0.0084	-0.33	-0.18	1900
1901	-0.0043	-0.32	-0.22	
1902	-0.0207	-0.34	-0.38	
1903	-0.0141	-0.36	-0.46	
1904	-0.0117	-0.37	-0.51	
1905	-0.0235	-0.39	-0.35	
1906	-0.0242	-0.42	-0.26	
1907	-0.0105	-0.44	-0.42	
1908	0.0094	-0.44	-0.46	
1909	0.0024	-0.42	-0.35	1909
1910	0.0135	-0.38	-0.49	1910
1911	-0.0131	-0.39	-0.51	
1912	-0.0079	-0.41	-0.44	1912
1913	0.0111	-0.41	-0.40	
1914	0.0186	-0.39	-0.23	
1915	0.0244	-0.37	-0.16	
1916	0.0229	-0.34	-0.40	
1917	0.0172	-0.32	-0.50	
1918	0.0137	-0.31	-0.36	
1919	0.0064	-0.29	-0.30	
1920	0.0002	-0.29	-0.25	
1921	0.0124	-0.29	-0.21	
1922	0.0241	-0.27	-0.29	1922
1923	0.0154	-0.24	-0.27	
1924	0.0084	-0.24	-0.26	
1925	0.0167	-0.23	-0.23	1925
1926	0.0127	-0.21	-0.09	
1927	0.0046	-0.20	-0.19	
1928	0.0087	-0.20	-0.17	
1929	0.0101	-0.18	-0.35	
1930	0.0084	-0.18	-0.13	
1931	0.0094	-0.17	-0.07	
1932	0.0115	-0.16	-0.15	
1933	0.0167	-0.14	-0.28	
1934	0.0263	-0.12	-0.14	
1935	0.0275	-0.09	-0.17	1935
1936	0.0117	-0.07	-0.15	
1937	0.0105	-0.06	0.02	
1938	0.0264	-0.05	0.01	
1939	0.0265	-0.01	0.01	
1940	0.0121	0.00	0.07	1940
1941	0.0110	0.01	0.06	
1942	0.0020	0.03	0.01	
1943	-0.0099	0.02	0.04	
1944	-0.0144	0.01	0.15	
1945	-0.0130	-0.01	0.02	1945
1946	-0.0050	-0.02	0.07	
1947	0.0042	-0.02	0.00	
1948	-0.0112	-0.01	0.09	
1949	-0.0198	-0.02	0.11	
1950	-0.0245	-0.05	0.20	
1951	-0.0072	-0.07	0.03	
1952	-0.0045	-0.06	0.05	
1953	0.0043	-0.06	0.11	
1954	0.0061	-0.06	0.09	
1955	0.0133	-0.05	0.16	
1956	0.0115	-0.03	0.22	
1957	0.0008	-0.03	0.01	
1958	-0.0163	-0.03	0.03	
1959	-0.0181	-0.06	0.00	
1960	-0.0117	-0.06	-0.05	1960
1961	0.0121	-0.06	0.03	
1962	0.0034	-0.04	0.00	
1963	-0.0041	-0.05	0.04	
1964	0.0000	-0.05	-0.24	
1965	-0.0055	-0.05	-0.14	
1966	-0.0092	-0.06	-0.07	
1967	-0.0017	-0.07	-0.06	
1968	-0.0070	-0.08	-0.10	
1969	-0.0044	-0.08	0.04	
1970	0.0012	-0.07	0.02	
1971	0.0019	-0.08	-0.02	
1972	0.0053	-0.07	-0.07	
1973	0.0053	-0.07	0.06	
1974	0.0101	-0.06	-0.18	
1975	0.0166	-0.05	-0.12	1975
1976	0.0158	-0.03	-0.23	
1977	0.0178	-0.02	0.06	
1978	0.0090	0.01	0.05	1978
1979	0.0065	0.00	0.03	
1980	0.0149	0.02	0.14	
1981	0.0255	0.03	0.19	
1982	0.0256	0.07	0.01	
1983	0.0147	0.08	0.18	
1984	0.0195	0.10	0.01	
1985	0.0187	0.12	0.01	
1986	0.0024	0.13	0.04	
1987	0.0024	0.13	0.17	1987
1988	0.0078	0.14	0.22	
1989	0.0159	0.14	0.109	
1990	0.0253	0.17	0.298	1990
1991	0.0232	0.19	0.295	
1992	0.0320	0.22	0.094	
1993	0.0194	0.26	0.135	
1994	0.0117	0.26	0.204	
1995	0.0168	0.26	0.23	1995
1996	0.0176	0.29	0.227	
1997	0.0299	0.31	0.378	1997
1998	0.0329	0.35	0.53	1998
1999	0.0309	0.38	0.395	
2000	0.0266	0.41	0.301	2000
2001	0.0245	0.43	0.453	
2002	0.0174	0.46	0.818	
2003	0.0032	0.47	0.418	2003
2004	0.0166	0.47	0.435	
2005	0.0244	0.50	0.584	2005
2006	0.0115	0.52	0.56	
2007	0.0042	0.52	0.561	2007
2008	0.0060	0.53	0.427	
2009	0.0193	0.54	0.551	
2010	0.0277	0.57	0.63	2010
2011	0.0220	0.59	0.493	2011
2012	0.0144	0.61	0.515	2012
2013	0.0150	0.62	0.549	
2014	0.0146	0.64	0.58	
2015	0.0061	0.65	0.759	2015
2016	0.0126	0.65	0.87	2016
2017	0.0247	0.67	0.734	2017
2018	0.0266	0.70	0.678	2018



Again, since the late 1970s, our globe has been warming very rapidly.