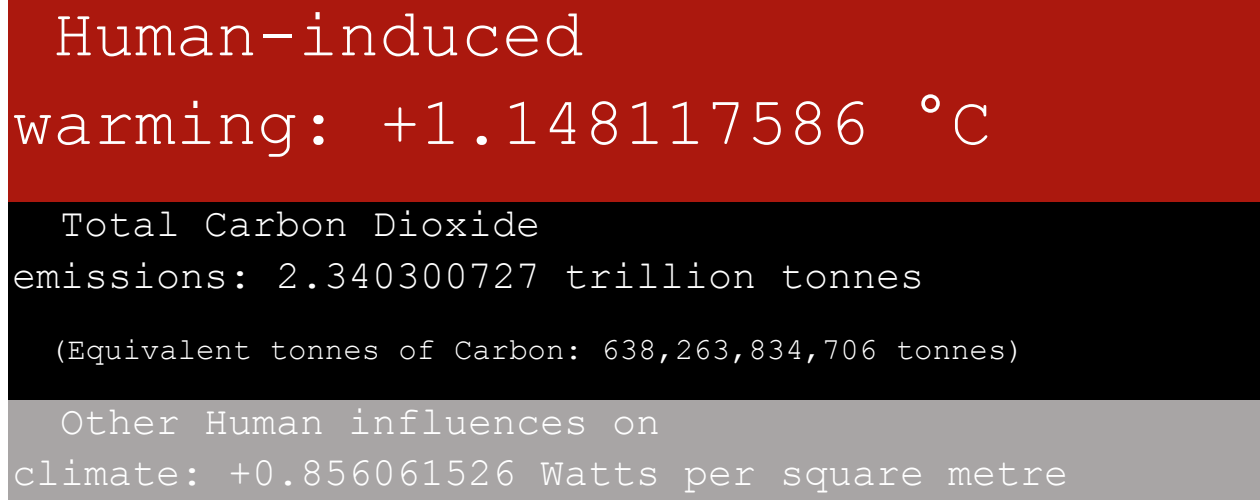


The Climate Change Series.

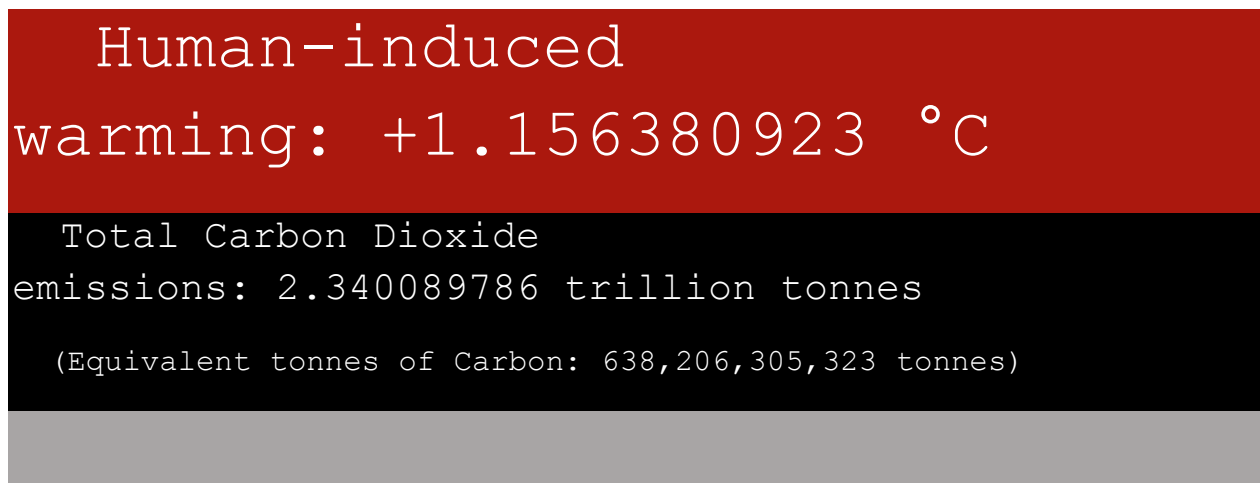
The **global warming index** is one on many interests measuring the impact of climate change.

- On June 2, 2020 [say the first of June],
 - Their estimate of human induced warming was +1.148 °C.
 - Total carbon dioxide emissions were 2.3403 trillion tonnes.
- On July 31, 2020 [say the first of August],
 - The warming was +1.156 °C; up 7 tenths of a percent.
 - Total carbon dioxide emissions were 2.3401 trillion tonnes; down by a smidge.

globalwarmingindex.org



on Tue, 02 Jun 2020 15:53:26 GMT



Other Human influences on climate: +0.855959568 Watts per square metre

on Thu, 30 Jul 2020 19:06:31 GMT

Why are we now providing three numbers?

Human-induced warming (ΔT) over a time-interval ranging from seconds to decades is proportional to total cumulative carbon dioxide emissions over that time-interval (E_{CO_2}) plus the impact of any change in global energy imbalance due to other human influences on climate (ΔF_{other}).

We can write this as an equation [1]:

$$\Delta T = \kappa \cdot (E_{CO_2} + \Delta F_{other} \alpha)$$

where κ is the “Transient Climate Response to Emissions” (about 0.4°C per trillion tonnes of CO₂ [2]) and α is the “Normalised Absolute Global Warming Potential” of CO₂ (about 1.0 W/m² per trillion tonnes of CO₂ [3]).

Don’t take our word for it: add them up and check! Now you know what’s causing global warming.

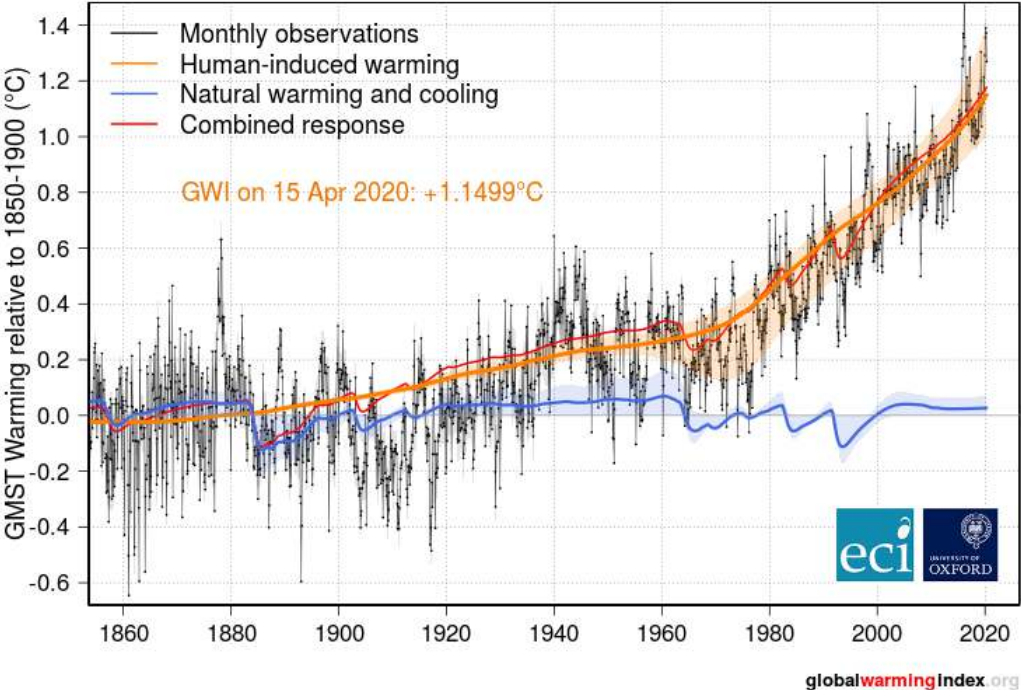
Current Global Warming Index

The first graph shows an index of human-induced global warming relative to the second half of the 19th century (1850-1900).

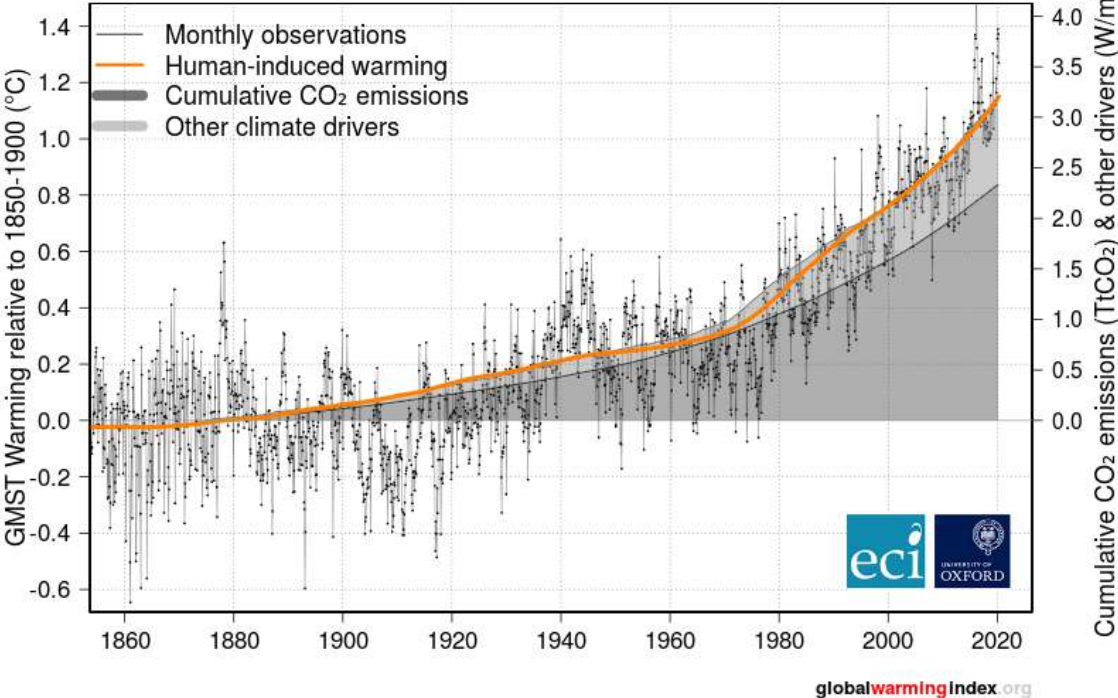
The second graph shows index together with the associated CO₂ and other forcing contributions.

100020001000200030004000500060007000800090000.511.522.533.544.55Cumulative CO2 emissions since 1870 (billion tonnes of carbon)Cumulative CO2 emissions since 1870 (billion tonnes of CO2)Human induced warming relative to 1861-80 (degC)Total human-induced warming

Global Warming Index (aggregate observations) - updated to Apr 2020



Global Warming Index & Forcing Contributions - updated to Apr 2020



globalwarmingindex.org is provided by the [Oxford University Environmental Change Institute](#).

[See here](#) for further details about the graphic above.

[1] Allen et al, *npj Clim Atmos Sci* **1**, 16 (2018)

[2] Myhre et al (2013) in IPCC 5th Assessment Report, incl. uncertainty range of 0.23-0.68°C/TtCO₂.

[3] $\alpha = \text{AGWP}_{\text{CO}_2}/H$, where H is the AGWP time-horizon. Myhre et al (2013) give values of 0.9-1.2 W/m² per trillion tonnes of CO₂ in the 20-100 yr range.

Source: IPCC (2013)

Design: Christopher Leedham & Myles Allen