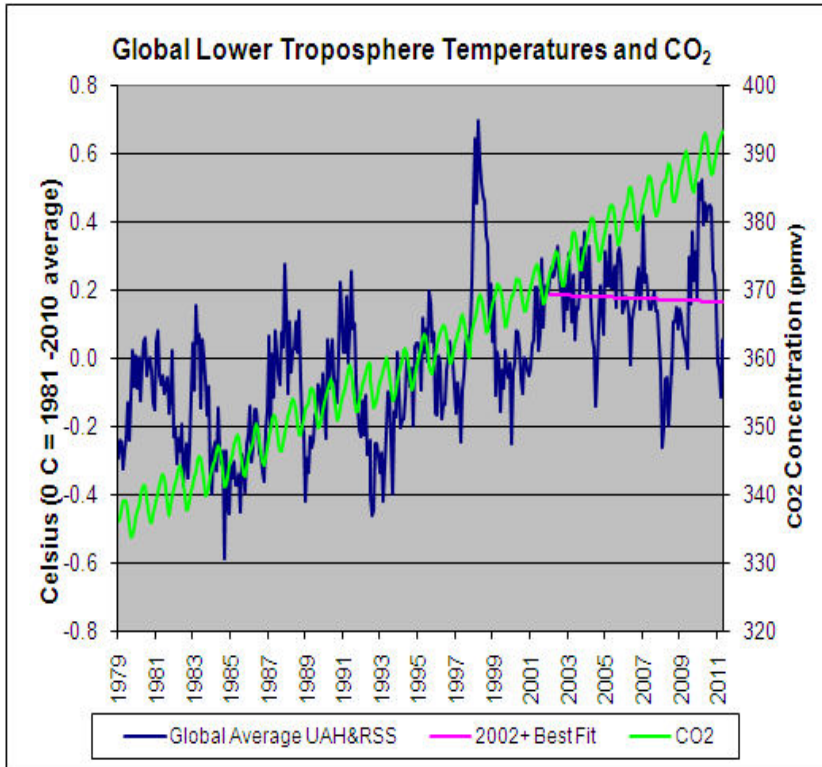


Friends of Science

Providing insight into climate science

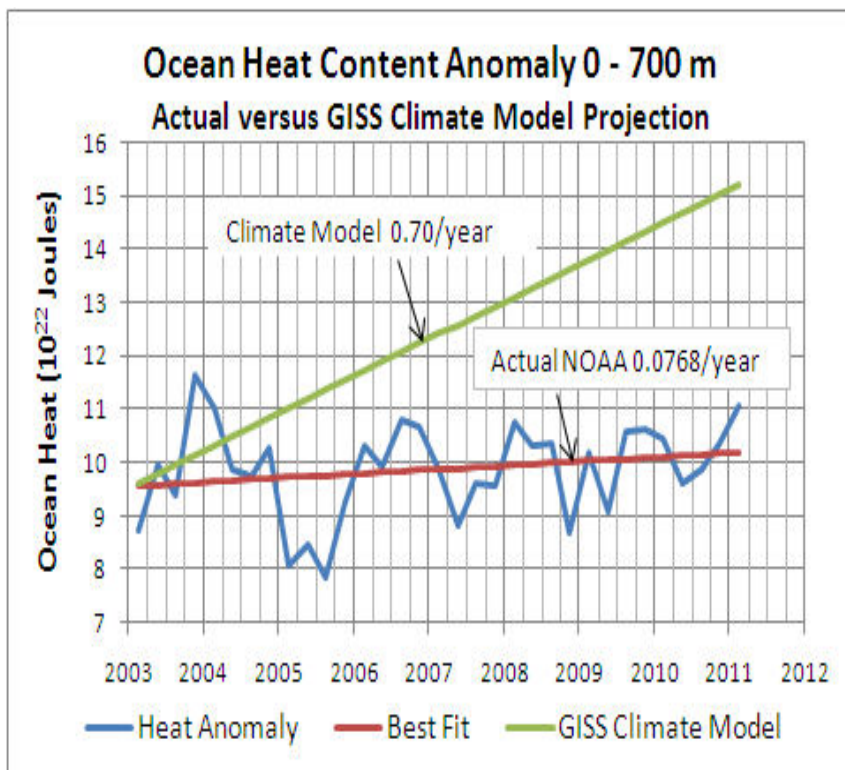
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The graph shows the temperature changes of the lower troposphere from the surface to 8 km as determined from the average of two analyses of satellite data.¹ The best-fit line from January 2002 to April 2011 indicates a decline of 0.02 Celsius/decade. The green line shows the CO₂ concentration in the atmosphere. There is no meaningful correlation between CO₂ and temperature. The effects of urban development contaminate surface temperature data.

Climate has always changed.

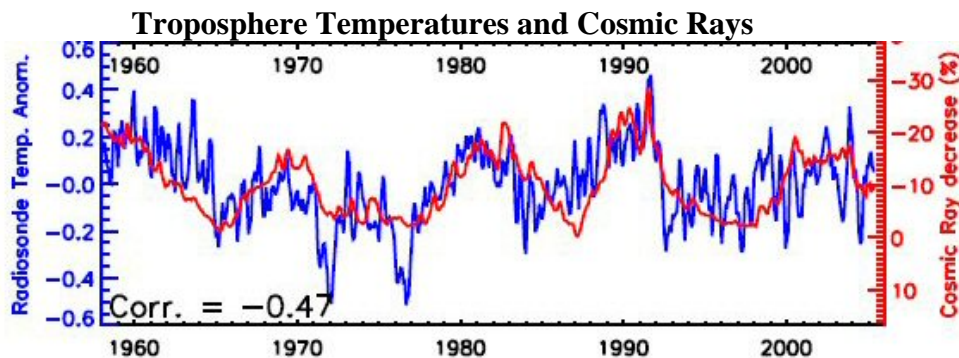
The Sun's magnetic flux has increased through most of the 20th century to a peak in 1992. The expected temperature response was delayed about 10 years to 2002 due to the large heat capacity of the oceans.



Most of the heat of the Earth's climate is contained in the oceans. The graph shows the change of ocean heat since accurate measurements have been taken starting in Q1 of 2003. The data from the National Oceanographic Data Center for the top 700 m of the world's oceans is compared to the GISS climate model projection. The projection bears no resemblance to reality.

Consider:

- The Sun is the primary driver of climate change – not CO₂.
- An active Sun diverts cosmic rays from the atmosphere resulting in fewer low clouds and allowing more sunlight to warm the Earth's surface.²
- A correlation of the Sun's activity to temperature shows the Sun has caused at least 75% of the warming of the last century.³
- Black carbon from burning biomass and coal has caused about 45% of Arctic warming.⁴
- Correcting the surface temperature record for the effects of urban development would reduce the warming trend over land from 1980 by half.⁵
- The IPCC computer-modeled temperature trend of the mid-troposphere from 1979 to 2009 is about 4 times higher than observed.⁶
- An analysis of satellite data shows that clouds provide strong negative feedback to temperature change, opposite of the assumption of climate models.⁷
- Water vapour, the most important greenhouse gas, has declined 13% in the upper troposphere since 1950, offsetting most of the warming effect of CO₂.⁸
- A uniform 3% change in water vapour has the same greenhouse effect as a doubling of CO₂.⁹
- Ice core data shows that CO₂ changes follow temperatures changes by about 800 years, so CO₂ cannot be a significant cause of climate change.¹⁰
- Satellite measurements show that outgoing radiation to space increases when surface temperatures increase, which is the opposite of climate model predictions.¹¹
- CO₂ is plant food. A 300-ppm CO₂ increase would raise the forest's productivity by about 50%.¹²



The graph shows a correlation of cosmic rays and global troposphere temperatures after removing the effects of El Nino, volcanic aerosols, NAO and a linear trend.¹³

Kyoto Nonsense:

- The Kyoto Protocol excludes developing countries. It commits Canada to reduce greenhouse gas emissions to 94% of 1990 levels by 2012. World emissions have increased from 1990 to 2010 by 50%.
- The International Energy Agency estimates that halving CO₂ emissions by 2050 would cost \$45 Trillion. This would reduce global temperatures by about 0.18 C.
- Kyoto CO₂ trading schemes transfer wealth from growing, efficient economies to inefficient economies. Kyoto is a wasteful effort with no benefit. Our taxes should be spent to solve real problems.
- In Ontario, solar and wind generated electricity cost up to 12 and 3 times that of electricity from conventional sources, respectively.
- In the UK, windmills operate at 11% of their capacity when demand is the highest.
- Canada's economy would benefit enormously from a warming climate. Warming would extend the agricultural growing season and increase the productive area.
- CO₂ growth in the atmosphere boosts crop yields and forest growth, benefiting humans and animals.

Bad Behaviour

The Climategate emails released from the Climate Research Unit show that some climate scientists:

- Delete their data rather than providing it to other researchers to verify results.
- Conspire to delete email and documents to avoid Freedom of Information laws.
- Delete data that contradicts their AGW theory.
- Fudge or adjust data without justification.
- Boycott scientific journals that publish results that contradict AGW theory.
- Collude to evict skeptical scientists from professional organizations.

References:

See Climate Change Science Essay in the Our Position section of the Friends of Science home page: www.friendsofscience.org for a discussion of these issues.

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PROVIDING INSIGHT INTO CLIMATE SCIENCE

