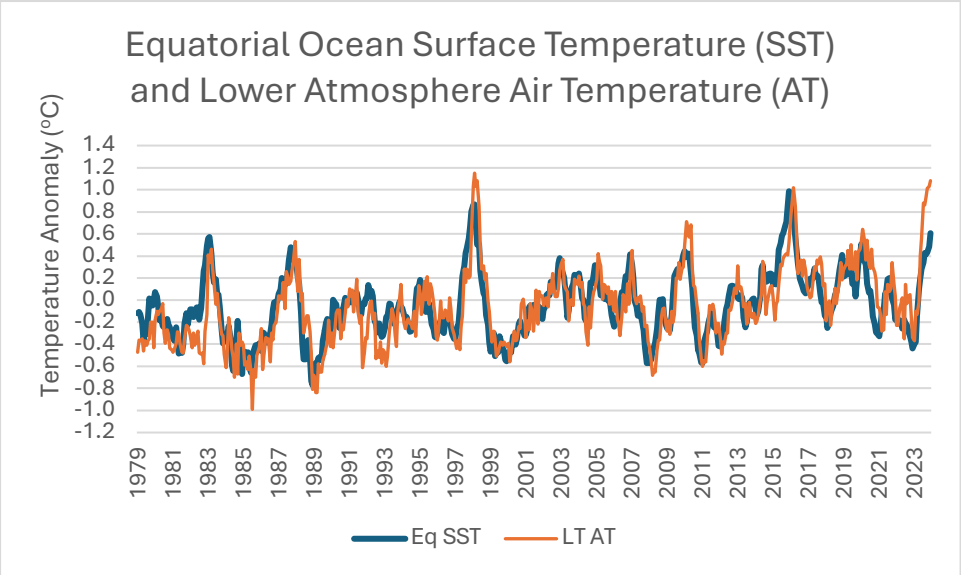
DONALD J TRUMP IS CORRECT: HUMANS ARE NOT THE CAUSE OF GLOBAL WARMING

WILLIAM R KININMONTH

1. **The temperature of the tropical atmosphere, the warmest region on Earth, is regulated by the equatorial ocean surface temperature.**

Data collected over the recent 44 years (1979-2023) of satellite observations conclusively demonstrate that equatorial ocean surface temperature leads tropical atmospheric temperatures.



[The ocean surface temperature covers the latitude band 10°N to 10°S obtained from the NCEP/NCAR R1 data base available at WRIT: Monthly Timeseries: NOAA Physical Sciences Laboratory; The lower atmosphere air temperature is for the latitude band 20°N to 20°S available from nsstc.uah.edu/data/msu/v6.0/tlt/uahncdc_lt_6.0.txt]

The correlation between the two series, when detrended, is 0.78. However, if the air temperature series is lagged then the correlation is increased to 0.85 at one and two months before falling to 0.80 at three months. Clearly, the tropical atmosphere air temperature follows the sea surface temperature. The air temperature does not control ocean surface temperature.

2. **Convection in the equatorial region links the tropical atmospheric temperature to ocean surface temperature.**

The buoyantly ascending air in the convection clouds follows a moist adiabatic lapse rate that is anchored to the temperature and water vapour content of the air near the ocean surface.

The recent temperature trend of the ocean surface temperature was 0.7°C/century, that of the lower troposphere air temperature was 1.6°C/century. The greater trend of the air temperature is to be expected because:

a) As the ocean surface temperature warms then the water vapour content of the air near the surface also increases to further shift the temperature of the ascending air in convection clouds to a warmer adiabatic lapse rate profile.
b) The profiles of moist adiabatic lapse rates spread with altitude as surface temperature and water vapour content increase.

Consequently, as equatorial ocean surface temperature increases it is expected that the increase in temperature of the atmosphere will warm faster, and that the rate of warming will increase with altitude. This expectation is confirmed by the warming rates over the latitude band 10°N to 10°S at standard pressure levels as given by the NCEP/NCAR R1 data base.

Warming Rate °C/century					
Pressure Level	1000mb	925mb	850mb	700mb	500mb
	1.1	1.1	1.6	2.0	1.2

The frequency of convection clouds penetrating high into the atmosphere decreases above 700mb (approximately 10,000ft) and so the influence of the warming ocean declines in the middle to high troposphere.

3. The region of greatest warming is over the poles in winter.

The warming trends of 2 metre air temperature for latitude bands as given by the NCEP/NCAR R1 database for 1979-2023 identify maximum warming over polar regions.

Near surface (2 metre) warming trend (°C/century) by latitude band							
Latitude Band	60N – 90N	30N – 60N	10N – 30N	10S - 10N	30S - 10S	60S – 30S	90S – 60S
Trend	6.6	2.5	1.6	1.0	0.5	0.2	3.0

The minimum warming trend is over the latitude band 30°S to 60°S, which is largely ocean. The warming trend is much greater over the adjacent more southerly latitude band of the Antarctic continent. The warming trend increases successively moving northward from the equatorial band to the Arctic.

	Near surface (2 metre) warming (°C/century) over the Arctic (Lat.60N-90N) and Antarctic (Lat. 90S-60S) varies by season.	
	WINTER	SUMMER
ARCTIC	October – March 8.1	April - September 4.2
ANTARCTIC	April – September 5.2	October - March 1.2

The wintertime maximum of polar warming is expected because during the months of polar darkness the temperature is sustained by transport of heat from the tropics, The warming tropical oceans has increased the flow of latent heat (through increased evaporation) to the tropical atmosphere. During the winter months of maximum heat transport by the atmosphere the additional heat is available to warm the polar air.

4. Carbon dioxide has little impact on tropical ocean temperature.

The only physical mechanism for increasing concentration of atmospheric carbon dioxide to impact on tropical ocean temperature is through an increase in emission of longwave radiation to be absorbed at the surface. However, water vapour and carbon dioxide have overlapping active absorption/emission bands for longwave radiation. In the tropical atmosphere the molecular number of water vapour molecules exceeds that of carbon dioxide by a factor of about 50. Water vapour molecules tend to absorb emissions by carbon dioxide molecules such that little of the additional emission from added carbon dioxide concentration reaches the surface.

	Longwave radiation absorbed at the tropical surface (W/m^2) from emission by water vapour and carbon dioxide				
Carbon Dioxide Concentration (ppm)	0	200	300	400	600
Radiation absorption (W/m^2)	361.40	368.01	368.64	369.26	370.25
Incremental Increase (W/m^2)		6.61	0.63	0.62	0.95

[Calculations using the MODTRAN medium resolution radiation transfer model for the tropical atmosphere under clear sky conditions and with standard tropical temperature and water vapour profiles.]

Emission from water vapour dominates the longwave radiation absorbed at the tropical surface. Increasing the atmospheric carbon dioxide concentration has miniscule impact.

5. Conclusion.

Recent global warming has its origins in ocean warming, is natural, and has nothing to do with changing atmospheric carbon dioxide concentrations.

William Kininmonth

w.kininmonth@bigpond.com

16 November 2024