

Warming Atmosphere or Seas?

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<http://www.sepp.org/twtwfiles/2024/TWTW%2011-30-2024.pdf>

A frequent claim by climate alarmists is that atmospheric warming from greenhouse gases is causing sea surface temperatures to increase. The claim is not plausible, because infrared radiation emitted by greenhouse gases cannot penetrate sea surfaces beyond a few millimeters (fractions of an inch). On her blog (see below), Jennifer Marohasy discusses an essay by William Kininmonth, former head of Australia's National Climate Centre, who provides a statistical analysis showing that during rising tropical sea and atmosphere temperatures, the temperatures of sea surfaces rise first, followed by atmospheric temperatures. His essay has five sections including a conclusion.

In the first section Kininmonth states: *“The temperature of the tropical atmosphere, the warmest region on Earth, is regulated by the equatorial ocean surface temperature.”* He provides a graph of both Equatorial Ocean Surface Temperature and Lower Atmosphere Air Temperature data produced by NOAA's Physical Science Laboratory, National Centers for Environmental Prediction (NCEP) and the National Center for Atmospheric Research (NCAR), abbreviated NCEP/NCAR. The ocean surface temperature covers the latitude band 10°North to 10°South latitude. The lower atmosphere air temperature is for the latitude band 20°North to 20°South latitude. The wider atmospheric band considers the transport of heat by surface winds. Kininmonth states:

*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.** [Boldface added.]*

In the second section Kininmonth states: [Boldface in original]

“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 vapor 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 vapor 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 vapor 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.”

Kininmonth confirmed this expectation with a table of warming rates at different atmospheric pressure levels using NCEP/NCAR data. He then states:

“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.

[The third section is] ***The region of greatest warming is over the poles in winter.***

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

Kininmonth gives a table showing warming trends for both the northern and southern hemispheres with the trend for the northern hemisphere greater, but the one for the southern hemisphere increasing sharply from 60 to 90°South. He then gives another table showing that the warming trend over the Northern Hemisphere is greater than over the Southern Hemisphere but the warming trend over the Antarctic is sharply greater in the winter than the trend during the summer. Kininmonth states:

“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.” [This is observed in the work of van Wijngaarden and Happer.]

In the fourth section Kininmonth states:

“Carbon dioxide has little impact on tropical ocean temperature. [Boldface in original]

*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 vapor and carbon dioxide have overlapping active absorption/emission bands for longwave radiation. **In the tropical atmosphere the molecular number of water vapor molecules exceeds that of carbon dioxide by a factor of about 50.** Water vapor molecules tend to absorb emissions by carbon dioxide molecules such that little of the additional emission from added carbon dioxide concentration reaches the surface.”* [Boldface added]

Kininmonth gives a table illustrating the longwave radiation absorbed at the tropical surface (W/m²) from emission by water vapor and carbon dioxide calculated from the MODTRAN medium resolution radiation transfer model for the tropical atmosphere under clear sky conditions and with standard tropical temperature and water vapor profiles. The table shows:

“Emission from water vapor dominates the longwave radiation absorbed at the tropical surface. Increasing the atmospheric carbon dioxide concentration has a minuscule impact.”

Kininmonth concludes: [Boldface added]

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

TWTW prefers the HITRAN high resolution radiation database over the MODTRAN model because it is updated frequently and includes the changing composition of the atmosphere, but the conclusions remain the same.

Emission from water vapor dominates the longwave radiation absorbed at Earth’s surface and lower atmosphere. Increasing the atmospheric carbon dioxide concentration has a minuscule impact.

Oceans Warms Atmosphere, with Meteorologist Bill Kininmonth By Jennifer Marohasy, Her Blog, Nov 25, 2024 <https://jennifermarohasy.com/2024/11/oceans-warms-atmosphere-with-meteorologist-bill-kininmonth/>

Link to essay: Donald J. Trump Is Correct: Humans Are Not the Cause of Global Warming By William Kininmonth, former head of Australia’s National Climate Centre,

Accessed Nov 29, 2024 <https://jennifermarohasy.com/wp-content/uploads/2024/11/Kininmonth-OpEd-20241116.pdf>