

# Rebuttal of Miskolczi's alternative greenhouse theory

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***In 2010 Miskolczi wrote a scientific paper suggesting that carbon dioxide increases in the Earth's atmosphere do not lead to more heat being trapped within the Earth system and therefore cannot be a cause of global warming. We show his theory to be incorrect in its application of the physics of radiation theory. Further, previously published studies of both satellite measurements of the radiation escaping the Earth and of the observed water vapour trends in the atmosphere through time do not support his conclusions.***

The Earth emits heat from its surface in the form of infrared radiation. Some of this radiation escapes straight to space, but most is trapped by gases and clouds in the atmosphere. A large fraction of this trapped radiation is returned to the surface. The amount of trapped radiation is a measure of the "greenhouse effect". Because of this effect the Earth is some 30 degrees Celsius warmer on average than it would be without greenhouse gases and clouds. More greenhouse gases, such as water vapour and carbon dioxide, lead to a larger greenhouse effect and thus to higher surface temperatures.

Miskolczi uses data from weather balloons and a complex physical model for the transfer of radiation in the Earth's atmosphere to derive the strength of the greenhouse effect. He interprets his results as showing that the average greenhouse effect does not vary in space and time. He then uses this conclusion to form a "radiative exchange equilibrium law", whereby any increase in the strength of the greenhouse effect caused by a rise in carbon dioxide levels would be compensated for by a decrease in other greenhouse gases –namely water vapour. He then states that there has been a compensatory decline in the greenhouse effect of water vapour.

We believe Miskolczi has misinterpreted his own results.

Firstly, there is no physical reason or "law" why the greenhouse effect should remain fixed. Its current value is determined by the vertical structure of greenhouse gases, clouds and temperature in the atmosphere. When these change, the greenhouse effect will also change.

Secondly, even Miskolczi's own results contradict his own interpretation. His figures clearly show the greenhouse effect varies enough to drive significant surface temperature change.

Thirdly, Miskolczi claims that observations from radiosondes show a decreasing trend in water vapour since 1948, mainly due to the measured high humidities in the 1950s and 1960s. However, it is known that these data are not suitable for trend analysis of water vapour.

Finally, Miskolczi's theory is immediately disproved by previously published direct observations that show no compensation between the greenhouse effects of carbon dioxide and water vapour. These observations in fact show that water vapour changes have amplified the carbon dioxide greenhouse effect. Satellite measurements of the radiation escaping the Earth find the greenhouse effects of both carbon dioxide and water vapour increasing with time. Detailed analyses of surface based atmospheric water vapour observations also find significant increases through time.

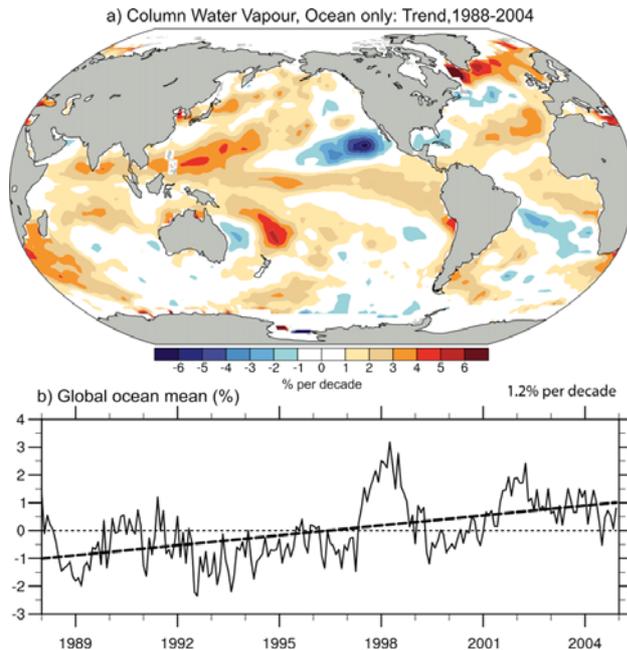


Figure 3.20

Linear trends in precipitable water (total column water vapour) in % per decade (top) and monthly time series of anomalies relative to the 1988 to 2004 period in % over the global ocean plus linear trend (bottom), from RSS SSM/I (Source: IPCC, 2007, updated from Trenberth et al., 2005).

## References

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