Satellite Evidence against Global Warming Being Caused by Increasing CO₂*

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Abstract

Eight years of the latest NASA satellite measurements of variations in both the Earth’s radiative budget, and in lower atmospheric temperature, suggest two important conclusions related to the global warming issue. The first is that the sensitivity of the climate system is much lower than the IPCC climate models suggest; that is, the climate system is dominated by negative feedbacks. A model analysis of the signals present in the satellite data reveals that previous satellite estimates of sensitivity were both too high, and too variable, because the contaminating effects of internal radiative forcing by clouds were not removed from the satellite data before diagnosing feedbacks. The claim that internal radiative forcing by clouds is large is demonstrated not only from its unique signature in the satellite data, but also from all 18 IPCC climate models that we analyzed, all of which show clear evidence of such cloud fluctuations. Since short-term feedbacks from satellite data are not necessarily the same as the long-term feedbacks associated with global warming, it is shown that the short-term feedbacks in several of the IPCC model also match their long-term feedbacks in response to greenhouse gas forcing. This is evidence that the satellite results apply to the global warming issue. If climate sensitivity is indeed low, then increasing carbon dioxide concentrations are insufficient to cause the observed warming in the last 100 years. An alternative explanation for the warming is provided in the form of satellite measurement of the modulation of global oceanic low cloud cover by the Pacific Decadal Oscillation. The sign and magnitude of the observed cloud modulation by the PDO is exactly what our Monte Carlo experiments predicted would provide the best match to variations in global average temperatures since 1900. Taken together, these results suggest that the IPCC’s claim that global warming is mostly man-made is, at best, premature.

Selected References


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If Feedback in the Climate System is POSITIVE (as the IPCC Claims)…

...then Increasing CO$_2$ is Sufficient to Explain Global Warming

...but are Feedbacks Positive?
OVERVIEW

Positive Feedback (and therefore CO₂ as the Climate Driver) has been MISTAKENLY INFERRRED

...because the effects of

**NATURAL CLOUD FLUCTUATIONS**

**HAVE BEEN IGNORED**

1. Neglect of **Short-Term** Cloud Variations
   ⇒ *Illusion of positive feedback* (true FB is neg.)
   ⇒ CO₂ *insufficient* to cause observed warming

2. Neglect of **Long-Term** Cloud Variations
   ⇒ Internal, chaotic forcing of climate change
Without POSITIVE FEEDBACK, manmade global warming becomes a NON-ISSUE.

21 IPCC Climate Models
(A1B emissions scenario)

All IPCC models exhibit POSITIVE feedback

Warming from 2XCO2 only (no feedback)
Negative feedback
POSITIVE CLOUD FEEDBACK has been inferred because warm years often have less cloud cover.
But What if Decreasing Clouds CAUSED the Warming In the first place?
A Mix-Up Between Cause and Effect Had Not Occurred to the Experts

• **Model Demonstration that Satellite-diagnosed feedbacks have been *Biased Positive***:
  – Reviewed by 2 IPCC model experts.
Recent Work Suggests the Problem is Serious

- **Article submitted for publication with extensive evidence from latest NASA satellite data AND from IPCC climate models**

- **Supports our Previously published Satellite Evidence for NEGATIVE Feedback in the tropics:**
  - Spencer, Braswell, Christy, & Hnilo, 2007: *Cloud and Radiation Budget Changes Associated with Tropical Intraseasonal Oscillations*, *Geophysical Research Letters*, August 9,
Climate Researchers have been “fooled” by Mother Nature


Positive Feedback is an Illusion

True Feedback is Negative

Positive Feedback?

y = 1.90x - 0.13
R² = 0.05

Negative Feedback
“RADIATIVE FORCING SPIRALS” are seen in EVERY IPCC climate model.
Forster & Taylor (2006) diagnosed long-term feedbacks (line slopes)

“Feedback Stripes” in IPCC Models reveal short-term feedbacks same as long-term feedbacks from CO2 forcing
Lesson Learned for Estimating Feedbacks

• Internal Radiative Forcing by Clouds has obscured the true signature of negative feedback
What Are the Implications of Negative Feedback??

1. Manmade global warming could be a false alarm (~0.6 deg C by ~2100 instead of ~3 deg. C)

2. Increasing CO$_2$ in the atmosphere is INSUFFICIENT to cause the observed warming over the last 50 to 100 years…

So, if not CO$_2$, What Has Caused “Global Warming”??…
Might Circulation-Induced Cloud Variations be Causing “Climate Change”?

![Graph showing temperature anomaly (deg. C) over years with clouds indicating fewer and more clouds. The graph suggests a possible correlation between cloud variations and temperature anomalies.](chart)
Compared NASA’s Aqua & Terra Satellite Data to the PDO Index

\[ y = 1.39x - 0.23 \]

\[ R^2 = 0.67 \]

Model predicted

LW+SW

Satellite-Observed

PDO Index

Radiative Forcing (W/m²)

2000 2001 2003 2005 2007

-2.5 -2.0 -1.5 -1.0 -0.5 0.0 0.5 1.0

PDO Index

-1.5 -1.0 -0.5 0.0 0.5 1.0 1.5
...it would take only 1 or 2% changes in cloudiness to explain all of the global warming and cooling episodes over the last 2,000 years.

Vikings arrive in Greenland

End of Viking colonization of Greenland

Medieval Warm Period

Little Ice Age

average of 18 previously published temperature proxies

[Loehle, 2007]
Recommendations

1. **Cloud Parameterizations** in Climate Models need to be **adjusted** to better match satellite data
   
   => previous comparisons were NOT sufficient to validate feedback

2. **Natural modes of climate variability** (chaos) need to be **investigated** as potential INTERNAL forcing mechanisms of climate change.
The End
(thank you)