CO_2 CANNOT CAUSE ANY MORE "GLOBAL WARMING"

FERENC MISKOLCZI'S SATURATED GREENHOUSE EFFECT THEORY

by Miklos Zagoni

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The Earth's atmosphere differs in essence from that of Venus and Mars. Our atmosphere is not totally cloud-covered, as is Venus: globally, about 40% of the sky is always clear. Also we have huge ocean surfaces that serve as a practically unlimited reservoir of water vapor for the air.

With the help of these two conditions, the Earth's atmosphere attains what the other two planets cannot: a constant, maximized, saturated greenhouse effect, so that adding more greenhouse gases to the mix will not increase the magnitude of the greenhouse effect and, therefore, will not cause any further "global warming".

The surface temperature of Venus is hot, because the total cloud cover prevents heat from escaping to outer space. Mars' surface is cold, because there is not enough greenhouse gas to reach the energy-saturation limit. Only the Earth has these two important features that have allowed it to maximize its greenhouse effect, completely using all available energy from the Sun.

This assertion is not a result of desk speculations. Nor is it a special hypothesis based on assumptions of limited application. It is the outcome of detailed spectral radiative-transfer analysis of huge archives of atmospheric data from NASA and elsewhere.

The project started about 25 years ago, when Dr. Ferenc Miskolczi, a Hungarian physicist, began to write a high-resolution atmospheric radiative transfer code — a special computer program that is necessary if we want to calculate the atmosphere's infrared radiative processes precisely.

Understanding the downwelling and upwelling long-wave fluxes in the atmosphere is essential if we are to compute the Earth's global energy balance and its greenhouse effect accurately.

Miskolczi used his program in remote-sensing satellite projects such as the Japanese ADEOS2 and NASA's CERES. In the meantime, Jeffrey Kiehl and Kevin Trenberth released their global mean energy budget in 1997. They based their energy distribution on the U.S. Standard Atmosphere of 1976, and used several estimations and approximations.

Miskolczi decided to check their work by using his computer code on the best available observed global atmospheric database. He chose the TIGR global radiosonde archive of the Laboratoire de Météorologie Dynamique, Paris.

Miskolczi reported the launch of his project in 2001 in the Quarterly Journal of the Hungarian Meteorological Service (QJHMS), a 110-year-old English-language learned journal.

From that archive, he selected about 230 vertical atmospheric profiles, representing the global average well, and started the computations on each of the selected profiles, and also on their global average. He reported the results in 2004, also in the QJHMS. The co-author of the paper was his boss at NASA.

Three interesting findings emerged –

First, Miskolczi discovered that the proportion of the surface upward longwave radiation that is absorbed by the atmosphere is equal to the downward longwave atmospheric radiation. This relation (within the usual error margins) was there in the Kiehl-Trenberth 1997 distribution implicitly. However, Miskolczi stated it exactly and explicitly.

Secondly, Miskolczi found that the global mean upward longwave radiation of the atmosphere is half of the surface upward longwave radiation. Again, this correlation had been known and taken into account implicitly earlier, but Miskolczi proved it with a higher accuracy, and wrote it down as a new balance condition.

Thirdly, on the TIGR database, using his program, he was able to derive (probably for the first time in the climate literature) the global mean infrared optical depth of the Earth's atmosphere — the exact radiative-transfer measure of the greenhouse effect.

In 2007, Miskolczi published another—more theoretical—article in QJHMS. He realized that his new, explicit flux relations, added to the well-known set of global energy balance conditions, led to a system of solvable equations describing an equilibrium greenhouse effect – equations that could be tested against the measurements. Miskolczi found that the solution of the theoretical unperturbed equilibrium greenhouse equations is equal (within less then 0.1 per cent) to the real observed greenhouse effect shown in the TIGR database.

In the 2007 paper, he also made an important theoretical step forward. He realized that Eddington's long-standing solution of the Schwarzschild-Milne radiative transfer equation contained an approximation that applies only to an infinite atmosphere, but was invalid in the finite atmosphere of the Earth. Miskolczi solved the equation with real boundary conditions. It was this exact, analytical solution that allowed him to calculate the global average infrared optical depth of the Earth's atmosphere correctly.

The theoretical explanation of Miskolczi's set of equations was clear. There are two opposite forces determining radiative processes. The Earth is a hot stove in a cold room, heated by the sun. It must cool as effectively as it can: it has to reach its minimum energy state in accordance with the principle of least time. The most effective cooling is perspiration – releasing heat by evaporation, in the form of latent heat.

So, on the one hand, the amount of water vapor in the air is maximized in accordance with the principle of minimum energy. On the other hand, this maximum amount of water vapor, as greenhouse gas, in the air causes a maximized greenhouse heating. In this process, all of the available incoming energy from the Sun is transformed into longwave radiation upwelling from the surface of the Earth.

These two opposite forces maximize both the heating and the cooling of the surface. For as long as there is enough water in the oceans, these two forces are able to maintain equilibrium in the form of maximal heating and cooling.

Since the Earth's atmosphere is not lacking in greenhouse gases, if the system could have increased its surface temperature it would have done so long before our emissions. It need not have waited for us to add CO_2: another greenhouse gas, H_2O, was already to hand in practically unlimited reservoirs in the oceans.

Here is the picture. The Earth's atmosphere maintains a constant effective greenhouse-gas content and a constant, maximized, "saturated" greenhouse effect that cannot be increased further by CO_2 emissions (or by any other emissions, for that matter). After calculating on the basis of the entire available annual global mean vertical profile of the NOAA/NCAR atmospheric reanalysis database, Miskolczi has found that the average greenhouse effect of the past 61 years (from 1948, the beginning of the archive, to 2008) is –

- constant, not increasing;
- equal to the unperturbed theoretical equilibrium value; and
- equal (within 0.1 C°) to the global average value, drawn from the independent TIGR radiosonde archive.

During the 61-year period, in correspondence with the rise in CO_2 concentration, the global average absolute humidity diminished about 1 per cent. This decrease in absolute humidity has exactly countered all of the warming effect that our CO_2 emissions have had since 1948.

Similar computer simulations show that a hypothetical doubling of the carbon dioxide concentration in the air would cause a 3% decrease in the absolute humidity, keeping the total effective atmospheric greenhouse gas content constant, so that the greenhouse effect would merely continue to fluctuate around its equilibrium value. Therefore, a doubling of CO_2 concentration would cause no net "global warming" at all.

Surface warming is possible only if the available energy increases. This may happen through changes in the activity of the Sun, or through variations of our planet's orbital parameters, or through long-term fluctuations in the exchange of heat between the ocean and the atmosphere.

There are also some man-made sources. Air-pollution by aerosols (soot, black carbon, dust, smog etc.), and large-scale surface modifications according to urbanization and land-use change may—and probably do—alter the amount of absorbed and reflected shortwave energy, and can hence lead to change in the long-term energy balance.

These terms are all involved in the "available energy". They can all modify the "effective temperature" of the Earth – i.e. the temperature of a planet with the Earth's albedo (or reflectivity) at the Earth's current distance from the Sun, without the presence of greenhouse gases in the air. The effective temperature is now 255 Kelvin, or –18 °C.

Miskolczi asserts that the surplus temperature from the greenhouse gases (about 33 C°, bringing global mean surface temperature up from –18 °C to 15 °C) is constant, maximized, and cannot be increased by our CO_2 emissions, because it is the greenhouse effect's theoretical equilibrium value.

It is possible that in the 21st century the effective temperature may change a little, just as it has changed in previous centuries. But the additional (greenhouse) temperature will be 33 C°, within a variation of about 0.1 C° of recent decades. Physically, it cannot increase (as the UN IPCC has predicted it will increase) to 35-38 C° to produce a 2-5 C° warming.

The conclusion is that, since the Earth's temperature does not depend on our CO_2 emissions in any way, trying to limit our emissions is bound to be entirely ineffective in protecting the climate from warming.