

# Why our CO2 emissions do not increase atmosphere CO2 Pt. 1

The genius of Al Gore

Give Al Gore an A for marketing and an F for science. But, hey, we all know the sale is in the marketing. The genius of Al Gore was to make his invalid myth simple:

1. Our CO2 emissions increase Atmosphere CO2, and
2. Atmosphere CO2 heats the Earth.

What could be simpler? Al Gore assumed his two invalid claims were true. His marketing job was to make you believe bad things happen when Atmosphere CO2 rises.

Everybody believed Al Gore. Well, almost everybody. His simple, inaccurate description of how our climate works created a generation of science deniers, some with PhD's. Al Gore turned climate science into a political-environmental movement.

The alarmists' goal is to scare you into believing our CO2 causes climate change. Once scared into an invalid belief, you will tend to hold that invalid belief forever.

Those who believe Al Gore's marketing believe they can make the Earth cooler by reducing our CO2 emissions. Al Gore has sold them a bridge to nowhere.

Climate alarmists are like the Aztecs who believed they could make rain by cutting out beating hearts and rolling decapitated heads down temple steps.

Both of Al Gore's two assumptions are wrong. This article shows how his first assumption is wrong. Nature, not human CO2 emissions, causes the changes in Atmosphere CO2.

## The Logical Fallacy of Climate Change

Climate alarmists tell us climate change causes bad stuff to happen, and if bad stuff happens, they claim it is our fault. The alarmist logic goes like this:

If human CO<sub>2</sub> causes climate change, then bad stuff will happen.

Bad stuff happens. Therefore, human CO<sub>2</sub> causes climate change.

This alarmist claim is the well-known logical fallacy called "Affirming the Consequent." Here is an example that illustrates this logical fallacy:

If Bill Gates owns Fort Knox, then Bill Gates is rich.

Bill Gates is rich. Therefore, Bill Gates owns Fort Knox.

The logical error is to assume that every result has only one possible cause. Shrinking glaciers do not prove we caused them to shrink.

The relevant climate change questions are about cause and effect.

The relevant climate change questions are not whether the climate has changed. Climate always changes. The only relevant climate change questions concern cause and effect:

1. Do Human CO<sub>2</sub> emissions significantly increase Atmosphere CO<sub>2</sub>?
2. Does Atmosphere CO<sub>2</sub> significantly increase climate change?

Climate alarmists must prove BOTH answers are YES. Otherwise, they lose their case.

This article shows why the answer to the first question is NO. A future article will show why the answer to the second question is also NO.

Why Human CO<sub>2</sub> emissions do not cause climate change.

Fig. 1 shows why nature's CO<sub>2</sub> emissions, not Human CO<sub>2</sub>, are the major cause of the observed change in Atmosphere CO<sub>2</sub>.

All numbers in this article represent amounts of CO<sub>2</sub>. CO<sub>2</sub> units are in parts per million by volume (ppmv) of CO<sub>2</sub>. Gigatons of Carbon (GtC) convert to ppmv using: 1 ppmv of CO<sub>2</sub> = 2.13 GtC.

In the middle of Fig. 1 is a box that represents the CO<sub>2</sub> in our atmosphere. The amount of CO<sub>2</sub> in our Atmosphere in 2015 was 400.

Land and Ocean CO<sub>2</sub> emissions into the Atmosphere total about 100 each year (plus or minus ten percent). An almost equal amount flows from Atmosphere CO<sub>2</sub> to Land and Ocean CO<sub>2</sub> each year (CDIAC, 2016; IPCC, 2007a; IPCC, 2007b).

Let's use an analogy to help understand Fig. 1. Let water in a lake represent Atmosphere CO<sub>2</sub>.

Two large rivers flow into the lake. One river represents Land CO<sub>2</sub>. The other river represents Ocean CO<sub>2</sub>. Together, they supply about 100 units per year to the lake.

Lake water spills over a dam. The inflow of 100 raises the lake level until the outflow over the dam equals the inflow.

Similarly, the flow of Land and Ocean CO<sub>2</sub> into our Atmosphere increases the amount of CO<sub>2</sub> in our Atmosphere. Increased Atmosphere CO<sub>2</sub> increases CO<sub>2</sub> outflow to Land and Ocean. Like the lake, Atmosphere CO<sub>2</sub> is at equilibrium when outflow equals inflow.

If inflow exceeds outflow, the lake level (Atmosphere CO<sub>2</sub>) will rise until outflow equals inflow. If outflow exceeds inflow, the lake level will fall until outflow equals inflow.

Fig. 1. Our Atmosphere's CO<sub>2</sub> is like a big lake. It receives CO<sub>2</sub> from two big rivers (Land and Ocean) and from one small river (Human). Temperature controls CO<sub>2</sub> flow from Land and

Ocean to Atmosphere. Lake level rises or falls until outflow equals inflow.

The dam separates the CO<sub>2</sub> spill into two parts. One part goes back to Land. The other part goes back to the Ocean.

Fig. 1 includes the much longer CO<sub>2</sub> cycle where Land CO<sub>2</sub> becomes Fossil Fuels. Human CO<sub>2</sub> emissions complete this CO<sub>2</sub> cycle by returning Fossil Fuel CO<sub>2</sub> to the Atmosphere.

A small river, with a flow of 4, also flows into the lake. This small river represents the Human CO<sub>2</sub> flow into our Atmosphere. This small river adds only 4 percent to the Land and Ocean flow of 100 into the lake. This small river raises the total flow into the lake to 104. This will raise the lake level until the outflow equals 104.

The contribution of Human CO<sub>2</sub> to the new lake level (Atmosphere CO<sub>2</sub>) is only 4 percent of the lake level above the dam, or only 4 percent of the total flow into and out of the lake. Ninety-six percent of the CO<sub>2</sub> flow into and out of our Atmosphere is due to nature.

Fig. 1 shows a scenario where the total inflow into the Atmosphere equals the total outflow, and where the Human CO<sub>2</sub> contribution goes to Land to support vegetation growth. Because inflow equals outflow, Atmosphere CO<sub>2</sub> will remain constant whether Atmosphere CO<sub>2</sub> is 400 or 300 or any other value.

Salby (2016) comes to the same conclusion. Salby (2012) authored the comprehensive textbook, "The Physics of the Atmosphere and Climate."

Our Atmosphere does not treat Human CO<sub>2</sub> any differently than CO<sub>2</sub> from Land and Ocean. Human CO<sub>2</sub> is simply another input to Atmosphere CO<sub>2</sub> that will increase the outflow of Atmosphere CO<sub>2</sub> to Land or Ocean by the same amount as the Human CO<sub>2</sub> flow into the Atmosphere.

Temperature controls Atmosphere CO<sub>2</sub>.

Salby (2015) shows, directly from data and with no hypotheses, that Temperature sets the rate at which Atmosphere CO<sub>2</sub> increases or decreases. This means temperature sets the equilibrium value of Atmosphere CO<sub>2</sub>. Fig. 1 indicates the Temperature effect by the symbol for the Sun.

If the Sun, cloud cover, or ocean currents change to increase temperature, the increased temperature will cause more Land and Ocean CO<sub>2</sub> to flow into Atmosphere CO<sub>2</sub>. This will increase Atmosphere CO<sub>2</sub> until outflow balances inflow.

Temperature is like the accelerator in your car. Atmosphere CO<sub>2</sub> is like the speed of your car. Atmosphere CO<sub>2</sub> follows Temperature like the speed of your car follows your accelerator. Press down, your car speeds up. Let up, your car slows down.

Contrary to what Al Gore told you, CO<sub>2</sub> does not control temperature. Temperature controls CO<sub>2</sub>.

Climate alarmists present their case.

Climate alarmists claim our CO<sub>2</sub> emissions cause 100 percent of the observed rise in Atmosphere CO<sub>2</sub>. We will show why their claim is unphysical and invalid.

Here is the alarmists' four step argument they claim proves their case:

1. From 1750 to 2010, humans added 171 units of CO<sub>2</sub> to our Atmosphere and Atmosphere CO<sub>2</sub> increased by 113 units. This leaves 58 units.
2. Land and Oceans absorbed the 58 units of Atmosphere CO<sub>2</sub>.
3. Therefore, Land and Oceans are net absorbers of CO<sub>2</sub>.
4. Therefore, Human CO<sub>2</sub> caused 100 percent of the increase in Atmosphere CO<sub>2</sub> since 1750 and 1960.

Here is my rebuttal to the Alarmists case:

During the same period that Human CO<sub>2</sub> emissions added 171 units of CO<sub>2</sub> to our Atmosphere, the Land and Ocean CO<sub>2</sub> emissions added 26,000 units to our Atmosphere. Land and Ocean also absorbed about 26,000 units of CO<sub>2</sub> from our Atmosphere, including the 171 units from Human CO<sub>2</sub>. There were no 58 units left over.

Fig. 2 illustrates how Land & Ocean CO<sub>2</sub> emissions compare to Human CO<sub>2</sub> emissions during this period. The ratio is 152 to 1.

Fig. 2. Land and Ocean CO<sub>2</sub> emissions are 152 times greater than Human CO<sub>2</sub> emissions during the period from 1750 to 2010.

The alarmists case fails because it omits Land and Ocean CO<sub>2</sub> emissions. Their omission leaves Human CO<sub>2</sub> emissions as 100 percent and makes their claim that Human CO<sub>2</sub> caused ALL the Atmosphere CO<sub>2</sub> increase artificial.

During the 260-year period, Human CO<sub>2</sub> caused "at most" 0.7 of the 113 rise in Atmosphere CO<sub>2</sub>.

"At most" is because Salby (2015) showed that Temperature controls the rate of change of Atmosphere CO<sub>2</sub>, and the equilibrium value of Atmosphere CO<sub>2</sub>. Under that scenario, Land and Ocean emissions and absorptions will adjust to neutralize the effect of Human CO<sub>2</sub> emissions, and the effect of Human CO<sub>2</sub> on Atmosphere CO<sub>2</sub> will be ZERO!

The Atmosphere does not know whether its CO<sub>2</sub> came from Land, Ocean, or Human CO<sub>2</sub> emissions. No matter what the source, the greater the total Atmosphere CO<sub>2</sub>, the greater the flow of Atmosphere CO<sub>2</sub> to Land and Ocean CO<sub>2</sub>. Therefore, Atmosphere CO<sub>2</sub> will seek the same balance level with or without Human CO<sub>2</sub> emissions.

Land can absorb CO<sub>2</sub> from the Atmosphere while Ocean provides CO<sub>2</sub> to the Atmosphere. Fig. 1 shows this scenario where Land absorbs ALL Human CO<sub>2</sub> emissions while Atmosphere CO<sub>2</sub> remains constant.

In 2015, Human CO<sub>2</sub> emissions were 4 percent of Land and Ocean CO<sub>2</sub> emissions. Therefore, Human CO<sub>2</sub> emissions caused “at most” only 4 percent of the rise in Atmosphere CO<sub>2</sub>.

A small river with a inflow of 4 cannot cause an outflow of 104. Yet this is what climate alarmists claim happens. The following tale illustrates the absurdity of the alarmist case:

An elephant crosses a bridge. A mouse, riding on the elephant’s back, says to the elephant, “We sure made that bridge shake, didn’t we?”

The alarmists’ case is a shell game. They would flunk physics.

Three more reasons Human CO<sub>2</sub> emissions do not control Atmosphere CO<sub>2</sub>.

Fig. 3 shows Atmosphere CO<sub>2</sub> scaled to fit Human CO<sub>2</sub> emissions and the annual change in Atmosphere CO<sub>2</sub> (NOAA, 2016; CDIAC, 2016; IPCC, 2007b).

Salby (2016) makes the following three arguments using Fig. 3.

1. Human CO<sub>2</sub> emissions increased significantly after 2002 due to China (Oliver, 2015). Yet Atmosphere CO<sub>2</sub> continued its same steady rise.
2. Annual changes in Atmosphere CO<sub>2</sub> (jagged line) do not follow the smooth increase in Human CO<sub>2</sub> emissions. (Also, Courtney, 2008.)
3. In some years, particularly the period from 1988 to 1993, Atmosphere CO<sub>2</sub> falls while Human CO<sub>2</sub> emissions continue to rise.

Therefore, Human CO<sub>2</sub> emissions do not control Atmosphere CO<sub>2</sub>.

Fig. 3. Human CO<sub>2</sub> emissions, annual change in Atmosphere CO<sub>2</sub>, and Atmosphere CO<sub>2</sub> scaled (by subtracting 266 and dividing by 50).

Conclusions

Climate alarmists claim Human CO<sub>2</sub> causes ALL the increase in Atmosphere CO<sub>2</sub>. Their argument fails because they omit Land and Ocean CO<sub>2</sub> emissions that are many times greater than Human CO<sub>2</sub> emissions.

Climate alarmists also omit how Land and Ocean CO<sub>2</sub> emissions and absorptions balance Atmosphere CO<sub>2</sub> with or without the presence of Human CO<sub>2</sub>. Temperature sets the equilibrium Atmosphere CO<sub>2</sub> independent of Human CO<sub>2</sub> emission.

Here are three more reasons Human CO<sub>2</sub> does not cause ALL the rise in Atmosphere CO<sub>2</sub>:

1. Human CO<sub>2</sub> emissions increased significantly after 2002, yet Atmosphere CO<sub>2</sub> continued its same steady rise.
2. Annual changes in Atmosphere CO<sub>2</sub> do not follow the smooth increase in Human CO<sub>2</sub> emissions.
3. In some years, particularly the period from 1988 to 1993, Atmosphere CO<sub>2</sub> falls while Human CO<sub>2</sub> emissions continue to rise.

Therefore, Human CO<sub>2</sub> emissions do not increase Atmosphere CO<sub>2</sub>.

Most public climate alarmist arguments use this invalid logic:

If human CO<sub>2</sub> causes climate change, then bad stuff will happen.

Bad stuff happens. Therefore, human CO<sub>2</sub> causes climate change.

Such arguments are invalid because they do not prove Human CO<sub>2</sub> caused the change.

If we stopped all Human CO<sub>2</sub> emissions today, it would not change future Atmosphere CO<sub>2</sub>. For part two click below.

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