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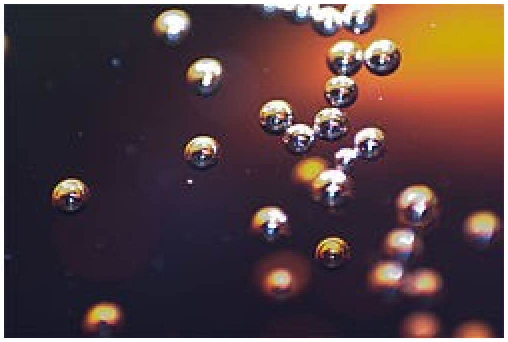
CO_2 AND CHARGE



by Miles Mathis

Note: this paper is not about the current CO2 controversy. I am simply trying to calculate the given concentration of CO2 in the atmosphere from first principles. I have previously shown that current theories fail to explain atmospheric concentrations and make-up, so I am doing my own math and theory.

In my last paper, I showed why oxygen and nitrogen are balanced in the atmosphere, and why they have the concentrations they do. Now let us apply this new theory to the question of oxygen versus CO2. We will use round numbers to estimate the cycles and the ratios. Since CO2 is about 10% out of balance in the unified field, its balance cycle will be 10% shorter than oxygen's. If they were produced and used at equal rates, oxygen would persist 10% longer. You will say, is that 10% per second, per annum, what? And if oxygen is in perfect balance, what is 10% less than forever? We will keep the numbers relative for now and see if we can work around those questions.

The only number we know for now is the final answer. We know the concentration of CO2 is about 525 times less than oxygen. That's .19%. If we switch to mass instead of volume, our numbers are 509 and .2%. As for the rest, the current estimates for oxygen are: 300Gt (gigatonne) yearly flux, 1.4 million Gt total mass, 4,500 year cycle*. For CO2: 576Gt yearly flux, 2,750Gt total mass, 5 year cycle**.

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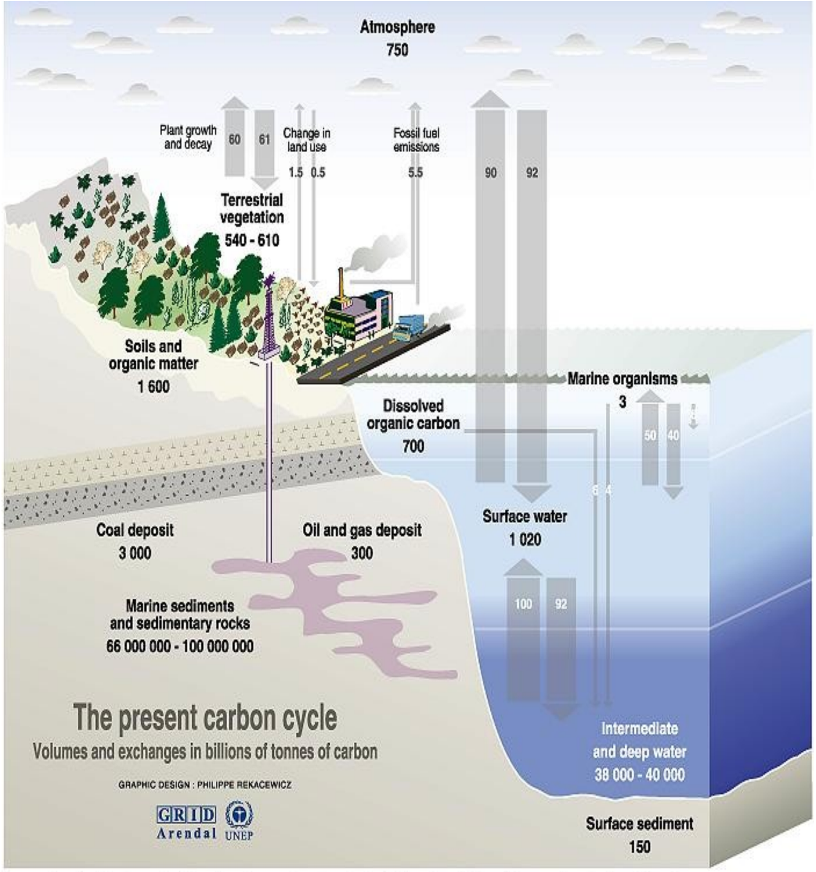
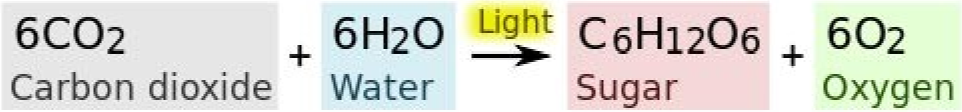


Sources: Center for climatic research, Institute for environmental studies, university of Wisconsin at Madison; Okanagan university college in Canada, Department of geography; World Watch, November-December 1998; Climate change 1995, The science of climate change, contribution of working group 1 to the second assessment report of the intergovernmental panel on climate change, UNEP and WMO, Cambridge press university, 1996.

[This TAMU chart's numbers are in GtC, which is gigatonnes of carbon. To convert to gigatonnes of CO2, you have to multiply by 3.67.]

As you see, the cycles of CO2 don't include variation number 3 from my previous paper (concerning unified field balance in the atmosphere), so the analysis must be incomplete. Current theory takes no account of CO2's tendency to fall out faster than oxygen, no matter the production and usage rates. In a moment I will show how the numbers don't add up, but first I would like to point out that once again the mainstream is hiding data. It is quite easy to find information on the oxygen cycle. Just go to Wikipedia and type that in. They give you all the numbers. But if you do the same thing with CO2, you get a very truncated page with no similar data. If you search the web, you have a very hard time finding anything useful. The straightforward charts aren't to be found anywhere, and if you find some scattered information, it isn't in the same units as the oxygen data. You have to do a lot of conversions. As we saw with the chart from TAMU above, CO2 data is usually posted in terms of the weight of the carbon in it, which is odd. In some situations that might be useful, but in atmospheric data, it is the opposite of useful. It would appear they don't want anyone doing the math I am doing.

I will start by taking you back to the oxygen cycle, and photosynthesis. Remember that 99.996% of oxygen is said to be from plant photosynthesis.



$$\underset{\text{Carbon dioxide}}{6CO_2} + \underset{\text{Water}}{6H_2O} \xrightarrow{\text{Light}} \underset{\text{Sugar}}{C_6H_{12}O_6} + \underset{\text{Oxygen}}{6O_2}$$

Since CO2 weighs more per molecule than oxygen gas, that means plants (and bacteria) must be using more CO2 by weight than they are emitting oxygen! The yearly flux of oxygen in the atmosphere is said to be 300Gt, so the yearly flux of CO2 from photosynthesis alone should be 412Gt. The problem there is the way the CO2 flux is explained. Notice that according to the given numbers in the chart, plant decay creates 220Gt [60 x 3.67] on land, while land plants take in 224Gt. Since plants are decaying in the same places they are growing, why can't plants just live off their own decay? In that case, 220Gt per year of CO2 would stay below 50ft, with much of it staying under 5ft. That's 38% of the total flux that never really makes it into the atmosphere. Normal measurements of CO2 don't take place at ground level in heavy vegetation, do they? Yes, some CO2 would be expected to be stirred out of low levels by wind or rising heat, but not all of it. I don't see any indication this is taken into account.

The same could be said for the oceans, where plants and bacteria will obviously have local CO2 available. They won't need to draw down CO2 from the atmosphere, since marine organisms also decay. So once again, most of that CO2 won't make it into the atmosphere—except perhaps the first 50 feet above the oceans.

But even if we use mainstream numbers, they don't add up. If you run the current numbers, you find that CO2 should be found at 1/469 [900 x 300/576] of oxygen, not 509. A 8.5% difference. Even with a lot of pushing and illogical assumptions, the mainstream can't get its numbers to match up.

Adding to the problem is that recent research has been indicating a far lower absorption of CO2 on land and sea. A 2011 paper by Deng and Chen indicated only 5.57PgC per year total absorption, which is equivalent to 20.4Gt of CO2 per year. Although their analysis doesn't include burning of fuels, that would add only another 20.2Gt to *production*. Which means the land and seas are barely absorbing fossil fuels, much less anything else. Plant respiration is left out of it entirely.

Notice that this confirms my own analysis. Deng and Chen used "Antarctic sites, oceanic sites, land and tower sites, mountain sites, and aircraft samples." They also admit that,

> Significant vertical error correlations exist between different levels at tower sites and aircraft samplings. The ensemble model simulations (Lauvaux et al., 2009) are not readily applied to global-scale inversion, and improperly defined covariances could lead to unrealistic corrections of inverted fluxes. Therefore, we inserted a weighting factor (**W**) into the cost function.

In other words, they are telling you how they fudged their own data. Why not just report the altitude variations and let us come to our own conclusions? But it is clear from a glance that they are not sampling either at low levels or in vegetation. They are ignoring the first 100 feet of the atmosphere on purpose. Antarctic and mountain sites have little vegetation (and more wind), aircraft samplings likewise, oceanic sites likewise. This is a problem, because if we ignore the first 50 or 100 feet, atmospheric CO2 flux drops from 576 to 20. We can then ask about the cycle time of *that* level. We must assume it is still around 5 years, since the research in this area has also been done at altitude. This really screws up the current numbers. Using those numbers, atmospheric CO2 should only be .0074%

of oxygen, not .2 That's an error of 27x.

So you see, the current theory doesn't just have a hole of 8.5%. It has a hole of 2700%. They have hidden that hole by including the lowest level transfers of plants and bacteria, while not doing their measurements in that level. In other words, they collect data at altitude, but then include flux that never takes place at that altitude. A huge push of data and theory. We may assume they do that for many reasons, but the original reason to was hide their inability to explain the total atmospheric concentration of CO2 versus oxygen and nitrogen. Just as they couldn't explain the equality of O and N, they couldn't explain CO2, either. Because they didn't have the charge field to work with, they had to push their data and theory.

So you see the problem is actually the opposite of what we expected. Given CO2's low production rate compared to oxygen—above 100 ft.—we have to explain why CO2 concentrations are so high, not why they are so low. CO2 concentrations at altitude are as high as they are only because the residence time rises as we go up. This applies to CO2 and not O or N because O and N are balanced and CO2 is not. CO2 is 10% unbalanced, as I showed above. What does that mean? How can we develop residence times from a percentage of unbalance? Quite simply, as usual. CO2's lack of balance means it is prone to fall. All we need to ask is at what rate. Well, since I have used the charge field to solve, it is the charge field that is 10% out of balance. Since I have proved in other papers that the charge field creates an acceleration of $.009545m/s^2$, we multiply that by $.1g$ here, to get our field acceleration. That means our CO2 field imbalance creates an acceleration on it of $.0000974m/s^2$. So we just go to the old equation $s = at^2/2$, and use that for a and the altitude for s, then solve for t. This shows us that the residence time depends on altitude, but only for gases that don't balance. It doesn't apply to N or O or neon or argon, but it does apply to CO2.

Let's solve for a given altitude, say 5,000m.

$t = \surd 2s/a) = 10,130s = 2.8 \text{ hrs}$

CO2 would fall that fast with no other atmosphere impeding it. But of course lots of atmosphere is impeding it, and the higher we go, the more total impedance. If we take the average density of the atmosphere between 0 and 5,000 to be about $1kg/m^3$, and the density of CO2 to be about 2, then we find that only the square root of the acceleration can be expressed, or $9.49 \times 10^{-9}m/s^2$. [The density indicates *distance* between particles, or the openness of the field. If we weren't in an acceleration or squared field, we would just divide by 2, finding half the original velocity. But since we are in a gravity field, which is a squared field, we have to take the square root instead. If that is not clear, think of it this way: we know that if the field is completely open, the CO2 moves at .0000974. To completely close the field, we would only need a density of 2, since in that case CO2 wouldn't move. It would then be bordered by itself, and would therefore be in equilibrium, by definition. So a field density of 1 is halfway between completely open and completely closed. If we weren't in a gravity field, that would indicate that CO2 was halfway blocked. Its velocity though the second gas would be half its original velocity. But since we are in a gravity field, every distance is now squared in kinematic equations. So CO2 can only express the square root of its acceleration. Since our numbers are below one, we square instead of squareroot. We want a smaller acceleration, not a larger, you see.] That gives us:

$t = \surd 2s/a) = 1,027,000s = 11.9 \text{ days}$

But we still aren't finished with the math. Since the charge field is *inside* the gravity field, we have to square again. As I have shown in other papers, the charge field in situations like this doesn't act like a square field, it acts like a quad field. It drops by the inverse quad in equations like this. The charge dissipates by the square due to the sphere, then to another square due to being inside the gravity field. Which means we square the acceleration once more, to get $9 \times 10^{-17} m/s^2$. Now, if we run the equation a third time, we get about 10.5 billion seconds, which comes out to 320 years.

You will say that is high compared to the current estimate of 5 years. But there are two things to consider here. One, it is fabulously LOW compared to oxygen (4,500 years) or nitrogen (24 million years). Two, my calculation is for 5km, remember. The experiments that established 5 years as the residence were done much lower. There is a steep increase in residence time as we increase the altitude, and if the experiments had been done at ground level, the scientists would have found a residence time of only a few days or weeks. In most cases, we must assume that plants are taking in CO2 from surrounding decay, and the residence time for that is minimal. The analogy is breathing. If you are living in a jungle, you aren't going to bother pulling down oxygen from the "atmosphere." You can just pull it in directly from surrounding plants, can't you? If we define the atmosphere as starting at the ground, then your breathing will be part of the flux. But if we start at the canopy, it won't.

There is a shorter way to estimate the residence time, but it gives us only an average rather than a time at a certain altitude. We go back to our first numbers. If, ignoring the very lowest level, the flux of CO2 is 20, and if the total atmospheric weight is 2,750, then the *average* cycle length has to be about 135 years. But that still doesn't work, since we have to correct our weight, too. If we are ignoring the lowest level, we (at least) have to subtract out the 220 that plants are keeping in their own level. If we correct for that, it makes the average residence 122 years. Because this is lower than 320 years, it implies that the average height of CO2 is lower than 5,000m. This is to be expected, since the plant cycle and the weight of CO2 would tend to keep the bulk of the gas low.

Another thing that keeps the CO2 low is the mechanism by which it is lifted into the atmosphere. Notice that we didn't even have to calculate the time of lift. We calculated only the time of fall. This is because the time of lift is so fast relative to the fall. CO2 is lifted by warm air pockets, and this takes almost no time at all, relative to 100 years. Mainstream sources will imply or tell you that CO2 is lifted and stirred into the atmosphere by wind and diffusion, but that is mainly false. The real mechanism is heat (charge again), which acts directly as a carrier. Without rising pockets of warm air, there is simply no way the heavier CO2 could be lifted into the atmosphere. A heavier gas cannot possibly diffuse up through lighter gases in a gravitational field.

Because the heat gradient is negative (it gets colder as you go higher), CO2 also could not rise if each level were at a constant temperature. Only the fact that we have large heat variations at each level creates these rising and falling pockets of air. In other words, CO2 will not rise on its own, and warm air will not rise unless surrounded by colder air. Therefore, the rise of CO2 relies entirely on these warm pockets of air.

How are they created? In this case, they are created by the plants directly. Remember, we need warm air rising not just generally or randomly. We need warm air rising where the low level CO2 already is. That is where the plants are decaying, of course. Well, heavy vegetation and decay creates not only CO2, but the warm air that it needs to rise. This is the basic mechanism of raising CO2, not diffusion.

I will be told that more CO2 exists at altitude than my theory seems to be able to account for. But again, residence times increase very fast at higher altitudes, so if CO2 does make it to higher levels, it can persist for very long periods, increasing the concentrations there. And thermals and other convection can lift CO2 tens and even hundreds of thousands of feet high.

So you see, the current CO2 cycle is pushed. Scientists need to study each layer separately in more detail, at least separating out the lowest level, which badly skews data and theory. We need more data on upper altitude residence times. And we need to include the charge field in all theory and calculations. As usual, that is my main addition to current theory.

*Walker, J. C. G. 1980. Springer-Verlag, Berlin.
**http://oceanworld.tamu.edu/resources/oceanography-book/carboncycle.htm