

Why the NOAA carbon dioxide data is fake.

NOAA uses the flask method. They pump carbon dioxide air into the flask with water in it. Then see how much the concentration is in the water.

Two major issues with this method.

1. The pressure from the pump varies from 1.2 times ambient pressure to 1.5 times ambient pressure.
2. No temperature control in the room and the temperature may vary +/- 5 F

The diffusion they are using is $-D(dc/dx)$, dc is the change in concentration and dx is the change in distance.

D is the diffusion coefficient.

For a gas D is affected by temperature and pressure.

$D(\text{CO}_2) = D_0 [T/T_s - 1]^m$ where $D_0 = 13.942 \times 10^{-9} \text{ m}^2/\text{s}$, $T_s = 227.0 \text{ K}$, and $m = 1.7094$.

Therefore, the D is a first order effected by Temperature as $T/T_s - 1$. T_s is constant at 227 Kelvin.

<https://www.sciencedirect.com/science/article/abs/pii/S0016703713002251?via%3Dihub>

Pressure effect is small but not negligible.

I talked to NOAA Dr. Kathryn McCain of NOAA's group for the flask method.

I also talked to Jennifer Carney Group Leader of NIST Carbon Dioxide Measurements and Reference Materials. She said they have a team working on a standard to math WMO X2019 standard reference to NIST standard reference. She is going to talk to the team and see if I can join.