

 **Spotlight on Climate****Every Bit We Emit – Matters For All of Us****STEFAN SOMMER**

(700 words)

Do emissions matter? We have known about the Greenhouse Effect ever since Joseph Fourier first measured it in 1824. Since then, we have learned that carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and a few less common gases trap the Sun's heat. These greenhouse gases act as an insulating layer that holds in heat, just like a down blanket holds in our personal heat on a cold night. Now, however, we have thickened that blanket of greenhouse gases to the point of overheating our entire planet.

By 2020 we had added 2,400 billion tons of greenhouse gases to the atmosphere and raised the Earth's average temperature by 1.1°C (=1.9°F). Now we are dumping over 50 billion tons of greenhouse gases every year. At this rate, we can expect to reach 1.5°C (=2.7°F) warming sometime in 2028.

We've all seen the ever more frequent headlines of climate disaster. Scientists have been telling us for decades that the more heat energy our greenhouse gases trap in our atmosphere, the more frequent and intense storms we'll see. We're already seeing this around the globe. Not just storms, but more frequent and intense droughts. Here in the Southwest, we have been in a "mega-drought" since 2002. As science predicted, this drought has been interspersed with huge downpours of rain or snow that cause flooding and erosion yet are still not enough to refill our large reservoirs or sufficiently recharge our groundwater.

Our northern Arizona forests and rangelands are drying out, and wildfires are becoming more frequent and more catastrophic. The resulting fire scars across our landscapes do not interact well with the more intense monsoon downpours we're now getting. This has led to Flagstaff homes being flooded, cars being washed down our streets, and increasing need for flood insurance.

The thing is that **every bit we emit** matters. Every ton, in fact every pound of CO₂ we emit is additive. It thickens that greenhouse blanket and holds in more heat.

Whether or not we can avoid 1.5°C warming depends on whether we can reduce our greenhouse gas emissions fast enough. We know what we need to do, but will we do it? Some argue that the problem is too big, so we shouldn't bother. But isn't that exactly the mindset that has caused our predicament in the first place?

The things we can do to reduce our emissions range from easy to difficult. Some of them require shifts in lifestyle, but shouldn't we be doing them anyway? Don't we owe it to ourselves, our communities, future generations, and all the members of our life-

support systems on Earth? You know, agricultural plants and animals, forests and rangelands, mountain ecosystems that filter our water, aspens that bring us joy with their fall colors?

Since the burning of fossil fuels is the primary source of our emissions, that's the first place we should be working to find alternatives. Biking and walking instead of driving your combustion vehicle can reduce your annual CO₂ footprint by 2.4 tons. It would also save you time at the gym. Given that our per capita footprint in the US is about 16 tons of CO₂ per year, a 2.4-ton reduction is significant. Avoiding one transatlantic flight can save you another 1.6 tons.

Another place we burn a lot of fossil fuels is to heat our homes. Replacing your gas furnace with an electric heat pump can reduce your footprint by 3.2 tons if you use dirty electricity generated using fossil fuels, and by as much as 8.8 tons if you use clean electricity generated by wind or solar power.

So those things can save you up to 12.8 tons/yr. Leaving 3.2 tons to go. Washing clothes with cold water can save another 0.25 tons. Eating a plant-based diet saves another 0.82 tons. Energy-efficient appliances can save up to 0.3 tons.

Most of these footprint reductions are better when you use clean electricity. That's why it is such good news that Babbit Ranches and others are installing over 2 GW of wind and solar generating capacity as we speak. We also need to support our city and county efforts to reduce large-scale footprints. Write your City Council members and County Supervisors today!

Dr. Stefan Sommer
Center for Adaptable Western Landscapes
at Northern Arizona University
and the
Northern Arizona Climate Change Alliance, www.NAZCCA.org/volunteer

Larger logo:

