

A short guide to global warming

Introduction

Welcome to this short guide to global warming. This leaflet was made to try to explain to you some of the basics regarding this problem.

The contents follows and expands upon the scientific consensus that the recent global warming trend is due to human activities.

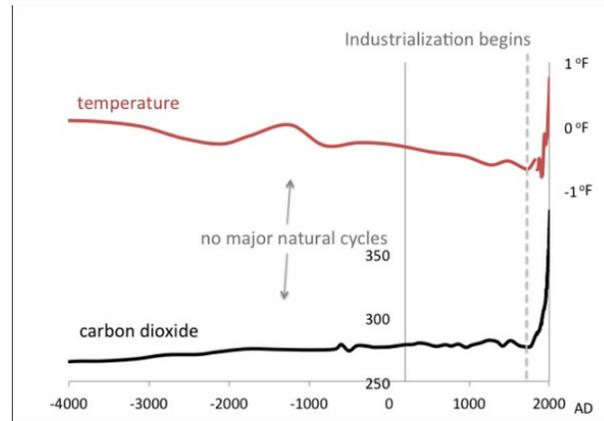
I would be grateful for to you to read on!



Our small planet as seen from space.

1. Cause

To illustrate the cause of the warming, here's a graph from the last 6000 years showing temperature and carbon-dioxide levels.



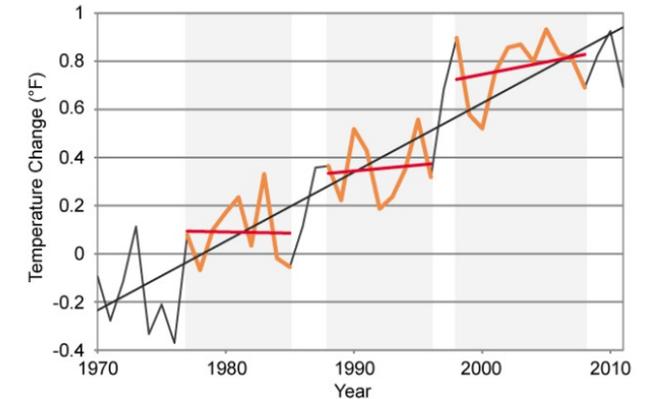
It shows that carbon-dioxide levels were pretty flat and that temperature levels were slightly declining. When the industrial age began we started pumping massive amounts of carbon-dioxide into the air.

The extra CO₂ behaves like an extra blanket causing less heat to be radiated out into space. The trapped heat causing temperature levels to rise.

Except for the extra carbon-dioxide in the air there are no major natural phenomena known that could have caused this. Natural cycles like the Milankovitch cycle have a much slower effect on the Earth's climate. As the sun's energy has been declining since 1960 it should be cooling. Volcanoes can't be the culprit either as we humans emit 100 times more CO₂.

Natural phenomena can have short term implications on the Earth's temperature. Sulfur emitted from volcanoes have a short term cooling effect. From the warming a big 93% goes into the Earth's oceans compared to a merely 2,3% that warms our thin atmosphere.

Therefore oceans-cycles like El Nino and La Nina have a big effect on the Earth's climate. Throw in all the particles and aerosols we emit, the 11 year sunspot cycle and the picture gets quite messy. The result in the warming is a combination of a jagged saw and a staircase.



This is the main reason why climate scientists always focus on the long term warming trend rather than the short term one.

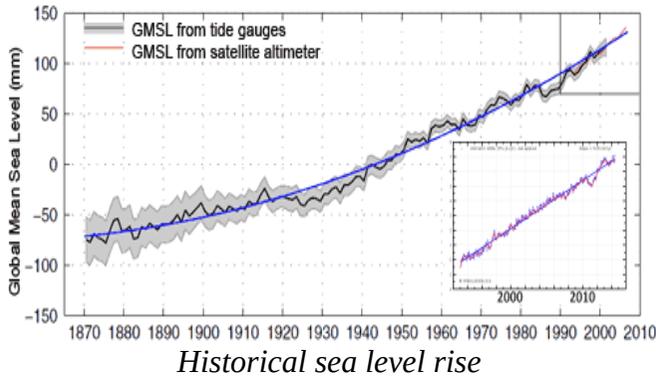
2. Effects

As a result glaciers all over the world have been retreating, there's less and less Arctic sea ice and Greenland's ice sheet is starting to melt away.



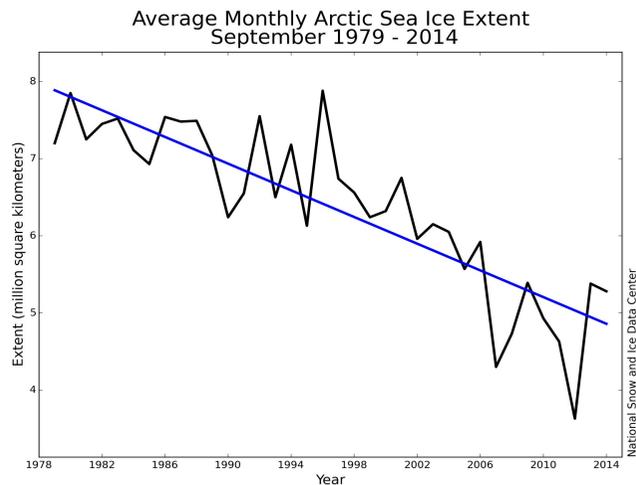
Muir Glacier, Alaska in 1941 and 2004.

As the oceans warm, like anything that warms, it expands causing most of the sea level rise.



The steady acceleration of sea level rise continues today and is a very big sign that the warming is continuing unabatedly.

Most disturbing is the triggering of so called feedback loops. When for example more and more Arctic sea ice melts, less and less sunlight gets reflected back into space. The newly exposed ocean absorbs even more heat to melt away even more sea ice, and a feedback loop is born.



Another feedback loop is hiding in the permafrost. When permafrost melts, it releases greenhouse gasses into the air. These greenhouse gasses then cause more and more warming and well ... you get the picture.

It's also the case that most of the warming graphs don't include the warming in the Arctic except for the ones that include satellite data. A special graph made by Cowtan and Way from the university of York shows an accelerated warming when the Arctic is included.

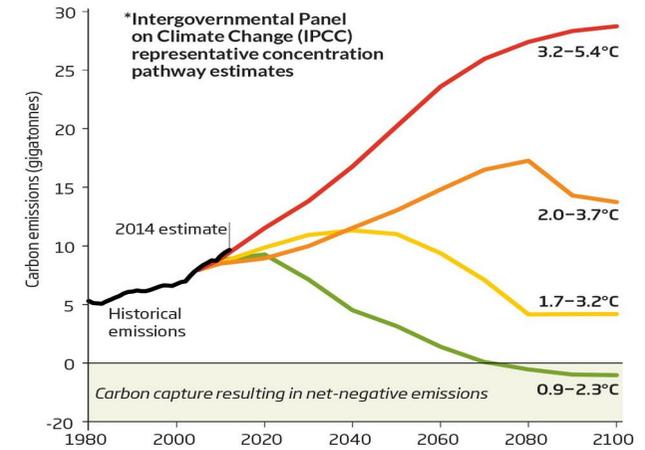
Antarctic land ice has begun to melt well ahead of scientists predictions, oceans are acidifying, there's more droughts, more forest fires, species migrations and extinctions and lots more. But I'm afraid I have to cut it short here, I hope you'll understand.

3. Solution

So how can we solve this? Well, it might be a surprise to you, but the solutions are already here. What is mostly lacking is political will power to implement them.

As you might have heard we need to limit the warming to 2 degrees Celsius (3,6°F) compared to pre-industrial levels. This is a popular view among politicians. Scientists however warn us that we need to limit the warming to just 1.5°C (2.7°F). But as the super powers have been dragging their feet for so long this now seems impossible to do. In fact we're very much in danger of not even achieving the 2°C limit. Current business as usual scenarios take us well beyond that (IPCC 3.2-5.4°C pathway).

Not achieving the 2°C limit will lead to large scale disasters and brings us ever so closer to runaway global warming. The time we have to prevent this is running out quickly. A strong and ambitious climate agreement at the next COP 21 in Paris is very much needed.



The common idea is to roughly half emissions by 2030 and to have little emissions left by 2050. For some this might look like difficult task, but for the ones that have been leading a green life for some time now, this certainly looks achievable!

I'm not going to tell you to change your light bulbs or to separate your garbage. The solutions go well beyond that. Left and right need to team up as if we we're putting the first man on the moon. Eliminate fossil fuel subsidies, put a real price on carbon and tax bad countries for bad behavior. Local economies will be stimulated. The transition will cost jobs, but will create many new ones as well. If jobs are the criteria for action, I can tell you this much:

There are no jobs on a dead planet!

Thank you for reading this. Further details, information and references can be found at: <http://globalwarmingguide.info>