

Watt's Happening? #169

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Science: should we trust it?



Science works. It figures stuff out. It answers questions.

A few weeks ago a friend sent me a link to a U-tube video, asking what I thought of it. In it a scientist working for the University of Ottawa is presenting to the Senate regarding climate change.

After a thorough review of the scientific literature he has come to the conclusion that, contrary to current scientific theory, carbon dioxide is NOT a greenhouse gas and global warming is caused entirely by the sun.

Should this radical claim be taken seriously? How do we judge?

Thankfully, there is a way. It's called the "scientific method".

HOW SCIENCE WORKS

The scientific method has been in development for a few hundred years but seriously perfected in the last century. It's the key that helps us separate fact from fiction.

The scientific method starts with a theory (an idea that might answer a question), then experiments are devised to test the theory, then observations are made as the experiments are carefully performed and repeated. This may confirm the theory or require it to be reworked, with more experiments and more observations, until finally, hopefully, the theory is "proven" to the scientist's satisfaction.

This, however, is just the beginning. Next, he/she must carefully write up the theory into a “paper”, including a detailed description of all the experiments with all of the observations and data, and present it for publication to a “peer reviewed journal.”

Other scientist/peers, experts in the field, will then review the paper for accuracy, authenticity, best experimental practices, etc.

If it passes muster, it is then published in the appropriate journal (there are thousands of journals covering every conceivable science) and made public. Then it is fair game for anybody to challenge, refute or build new theories upon.

KNOWLEDGE EVOLVES

Science is ever changing and evolving, but always built on a foundation of hundreds of years of accumulated knowledge. There would be no quantum theory without relativity, and no relativity without Newton’s law of gravitation. Science builds on science, always challenging and testing new ideas as it grows.

Shared data is another hallmark of modern science. 99.9% of all scientific data is in the public domain, which means everybody can see it and use it. Today, hundreds or even thousands of scientists around the world are working collaboratively on massively complex problems (like climate change) often for decades. Pure science is not hidden. It’s not secret.

SCIENCE WORKS

How can we tell if the scientific method works? Just look around. If the scientific method did not work, and work extremely well, you would not have a

super computer in your pocket, there would be no airplanes or satellites, no automobiles or electric lights, no medical technology. You bet it works!

BACK TO THE VIDEO

First, some climate science facts. 99.99% of all climate scientists have agreed for decades that a) the climate is warming primarily due to carbon dioxide building up in the atmosphere from burning fossil fuels, and b) the sun has only a slight effect.

So if our U-tube scientist is right and this is all wrong, then he has some pretty serious proving to do. Perhaps he has indeed discovered something amazing. Great, so publish already! Get it out there for review and critique by other experts in your field. Maybe you’ve missed something, or maybe you just revolutionized climate science! If so, you will find out as soon as you publish, but not before.

WARNING BELLS

Second, I get a bit suspicious when somebody is telling me exactly what I most want to hear: we are not to blame, we can burn as much fossil fuel as we like, and there is nothing we can do about climate change because it is caused by the sun. We’re off the hook!

Radical claims require radical proof. Just saying something is true does not prove it.

When in doubt, trust the global scientific consensus. Science works. It figures stuff out. It answers questions.

Science helps us find the truth, and finding the truth has never been more important.

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