

Computer Models & Fortune Tellers

Have you ever seen a fortuneteller or a palm reader? A lot of people have. We're all interested in the future, which is why folks still read their horoscopes even though they know it's a bunch of hooey. But that's a lot different than hugely expensive computer models making predictions about complex things that are absolutely going to happen. Or is it?

Consider some recent short-term examples. Virtually all pollster computer models said that Hillary Clinton would defeat Donald Trump for the presidency. *Oops*. Remember the global financial meltdown of 2008? That collapse happened primarily because Wall Street computer models had major errors in some of their assumptions.

Hurricanes are a good example of a moderately complex, short-term matter where enormous amounts of time and money have been spent on getting computer models to accurately predict their track. Hurricane Matthew is a recent example. At eleven days before U.S. mainland landfall, not one of the four best computer models predicted an accurate storm path. Nine days out, same story. One week to go and the predictions are off by hundreds of miles. At five days, they were still ALL wrong. At three days out one model *finally* predicted the correct path. However, the next day that same model immediately went wildly of course. Ultimately, not a single one of these powerful computer models was even remotely accurate.

It's clear from these and other examples, that computer models are not dependably accurate when dealing with MODERATELY complex phenomenon. So why would anyone believe that computer models would be more accurate when predicting HIGHLY complex matters? Consider that the climate for the entire planet is many orders of magnitude more complex than presidential elections, financial scenarios, or determining the path of a single hurricane.

It's well known that computer models are only as good as the data and instructions programmed into them by humans. When a climate computer model is created, several major **assumptions** are made before a single calculation takes place.

As a minimum, these computer models assume:

That scientists have measured and know all the relevant variables...

That scientists fully understand how all these variables behave...

And that scientists know exactly how all these variables interact with each other.

Surprisingly, scientists actually know NONE of these things!

The indisputable fact is that we have significant gaps in our understanding of each of these three major underlying assumptions.

Does it make sense that we should spend many trillions of dollars on a collection of ones and zeros that are essentially no more than rough guesses?

Which reminds me, have you seen how well computer models predicted climate change between 1998 and 2014? Nearly 98 percent of them predicted much higher warming than we experienced. As a group they anticipated 2.2 times as much warming as actually occurred.

We ALL have a fascination with the future. That's why horoscopes and palm-readers are still popular. And who doesn't want to be prepared for problematic future situations?

That said, there is no known human ability to reliably forecast the future. We can make very powerful machines, but we cannot program them with information that we don't possess or thoroughly understand.

So with these great gaps in human understanding of the planet's climate, how could we possibly expect long term computer climate models to be any more reliable than a fortune-teller?

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