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Climate Change Modelling - Science Is Not Entirely In

There is no comprehensive theory of climate. Modelling of climate system is achieved by meshing together various processes of interaction which we believe to be important in influencing the observed state of various subcomponents of the climate system (such as atmosphere, land, biosphere, oceans, ice, etc.). Many of these interactive processes are highly nonlinear and complicated, and a desired outcome from a model computation could be due to “wrong” reasons. The theoretical and observational foundation of each of the subcomponents is relatively strong. However, there is no analogous “theory of everything” in physics to guide the modeling of the climate system. It is quite possible (and there is evidence to suggest that is the case) that we are not including some of the important processes in the modelling of the climate system; it is quite plausible that there are interactive mechanisms we don't know anything about (yet). And the present state of the modelling is so complicated that it requires a group of climate and computer scientists and mathematicians (particularly statisticians) to construct a model and validate it. Achieving a physics equivalent of TOE (Theory of Everything) of climate where we have a comprehensive and internally consistent mathematical theory is likely not achievable. Perhaps the best analogy of the present state of climate modelling is the modelling of the financial system. And one knows what happened in 2008.