

Book Review by Daniel Zoltani

*Unsettled* by Steven Koonin

First, I think it's important to start my review with the authors bio.

*Dr. Steven E. Koonin is a University Professor at New York University, with appointments in the Stern School of Business, the Tandon School of Engineering, and the Department of Physics.*

*Dr. Koonin served as Undersecretary for Science in the US Department of Energy under President Obama from 2009 to 2011, where his portfolio included the climate research program and energy technology strategy. Before joining the government, Dr. Koonin spent five years as Chief Scientist for BP, researching renewable energy options to move the company "beyond petroleum."*

*Unsettled* explicitly acknowledges a warming globe, but also the problems in comparing instrumental and proxy temperatures that weaken confidence in the "warmest in 1,500 years" dooms day narrative. The book tells two related stories. The first part is about the science of the changing climate while the second part is about the response that society could make to those changes.

The main argument of the book is to add perspective to the narrative of climate change. In essence, Koonin seeks to replace the high-level summary from the American Association for the Advancement of Science (AAAS) that he himself is a long-time member of and reads:

*Our Nation, our States our cities and our towns face an urgent problem: Climate change. Americans are already feeling its effects and will continue to do so in the coming decades. Rising temperatures will impact farmers in their fields and transit riders in cities. Across the country, extreme weather events such as hurricanes, floods, wildfires, and drought are occurring with greater frequency and intensity. While these problems pose numerous risks to society, and the planet, undoubtedly the biggest risk would be to do nothing. Science tells us that the sooner we respond to climate change, the lower the risks and the costs will be in the future.*

With:

*The earth has warmed during the past century, partly because of nature phenomena and partly in response to growing human influences. These human influences, most importantly the accumulation of CO<sub>2</sub> from burning fossil fuels, exert a physically small effect on the complex climates system. Unfortunately, our limited observations and understanding are insufficient to usefully quantify either how the climate will respond to human influences or how it varies naturally. However, even as human influences have increased almost fivefold since 1950 and the globe has warmed modestly, most severe weather phenomena remain within past variability. Projections of future climate and weather events rely on models demonstrably unfit for the purpose.*

The first 11 chapters, filled with dense data, math, graphs, analysis and even references from the prevailing climate change reports themselves, looks to support this thesis.

The final 3 chapters of the book discusses the response. After the in-depth review of the first section, I was expecting an equally in-depth and convincing argument regarding what can we do, what should we

do and what will we do. In short, the conclusion left me wanting more and that's probably because there is no easy solution no matter how you look at it.

- Keeping human influences on the climate below levels deemed prudent by the UN and many governments would require that global carbon dioxide emissions, which have been rising for decades, vanish sometime in the latter half of this century.
- Emissions reductions would have to take place in the face of strong growing energy demand driven by demographics and development, the dominance of fossil fuels and the current drawback of low-emissions technologies.
- These barriers, combined with the uncertainty and vague nature of future climate impacts, means that the most likely societal response will be to adapt to a changing climate. However, this requires economic development and strong intuitions in developing countries to improve their ability to adapt (and their ability to do many other positive things as well)
- Finally, should there be significant deterioration of the global climate, from whatever the cause, humanity would be well served to know whether deliberate intervention into the climate systems i.e. geoengineering including Solar Radiation Management (SRM) or Carbon Dioxide Removal (CDR) are plausible strategies. This concept is well covered in the documentary "[Kiss the Ground](#)" trailer which gives a great overview of how vegetation and regenerative farming practices can help offset carbon emissions.

The big take away from the book is that all things being equal, it would be a good idea to eliminate, or at least work towards reducing CO2 emissions. But all else isn't equal so decisions must balance the cost and efficacy of mitigation measures against the certainties and uncertainties in climate science. And where your interests come out in that balancing act will depend in part upon what country you're in, how wealthy you are, and how much one considers that 40% of humanity still lacks access to adequate energy.

Overall, I found this book to be a great source of information, and a must read for anyone seeking perspective on why climate change needs to remain a hotly debated subject.