PMU199Y Assignment 5

Write a critical assessment of a climate model

Write a report that covers the following four items. Make sure to include in your report references to any source material you have used.

1. Choose a computational model of some aspect of climate change.
This may be a model that you’ve already looked at in earlier assignments, or a new one. I encourage you to do a little web searching for models we haven’t talked about in class yet. Any of the following types of model would do:
   a) Simple Energy balance models
   b) Global Circulation Models
   c) Coupled Earth System Models
   d) Impacts models (probing a impact of climate change)
   e) Integrated Assessment Models
   f) Policy planning Models
   g) Etc...
Make sure to indicate in your report what type of model you chose, and why you chose it

2. Investigate what the model does
Which processes are captured in the model? Why were those processes included? What was left out and why? Examples include:
   - The physics of the greenhouse effect (e.g. how greenhouse gases affect the earth’s radiative balance)
   - Impact of changing temperatures on other natural systems (such as weather, oceans, or ecosystems)
   - Where greenhouse gas emissions come from (e.g. by country, region, industrial sector, etc)
   - How human systems make use of energy (e.g. for manufacturing, agriculture, transport, housing)
   - The questions that policymakers need to negotiate (e.g. targets for emissions reduction, costs, how to measuring and adjusting targets)
   - How the economy works (e.g. energy prices, markets, taxes, incentives)?
   - Human behaviour (how people make decisions, how people share information, etc)?
   - The environmental impacts of different technologies (e.g. energy systems, transport, computing, biotech, waste disposal, etc)?
   - Specific proposed solutions to climate change (e.g. Reforestation, carbon capture, energy efficiency, etc)

3. Investigate what data the model uses
What data does the model need? Distinguish between data that was incorporated into the model design, and data you have to provide when you run the model – i.e. what inputs are needed? What kind of data will the model output? What would people do with this output data – for example what kinds of graph would they use to visualize the results?

4. Purpose, and fitness for purpose
What is the purpose of the model? (i.e. What kinds of questions was it designed to help answer)? How well does it help answer these questions?

Overall, how good is the model? Does it include (or exclude) things that are needed to help answer the questions? What are the limitations on interpreting the model’s outputs?