

Nuclear Lunch Questions for January 26th Discussion

Popular science background: [They found hidden patterns in the climate and in other complex phenomena \(pdf\)](#)

Scientific Background: [“For groundbreaking contributions to our understanding of complex physical systems” \(pdf\)](#)

1. In the energy balance equation (Eq. 1 in the scientific background), what are C_p and α ? What is albedo? (**Shyam Chauhan**)
2. What exactly is the climate variable y in Eq. 5? temperature, humidity? Or can y be any such quantity we like? (**Andrius Burnelis**)
3. In Fig. 6 in the scientific background, what does the y-axis represent? How does the figure support our conclusions on climate change? (**Joseph Derkin**)
4. Does the Manabe model presume a well-mixed atmosphere? i.e., are there any variances between low altitude and high-altitude CO_2 levels? How do the layers mix? What is the interplay between convection, water vapor, and CO_2 concentration? (**Nisha Singh**)
5. In the altitude vs. temp. figure in the popular science background release, what does the temperature in the x-axis represent? Is it an average over space and time? Why do we see double values of temperature as altitude rises? (**Yenuel Jones-Alberty**)
6. Have modern day calculations shown the same altitude vs. temperature graph shapes as Manabe’s 1967 model? How does the trend compare to data? (**Justin Warren**)
7. Are solar flares also part of the “natural sources” in the temperature change vs. time graph in the popular science background release? What human sources are used to get the red curve? (**Gula Hamad**)
8. Are there any general anomalies with measurements of surface temperature? E.g., some parts of the world have the corresponding atmosphere cool instead of warm? (**Justin Bryan**)
9. How does the spin system analysis relate to climate change? (**Brad McClung**)