

Storytelling with data at NASA's Earth Information Center

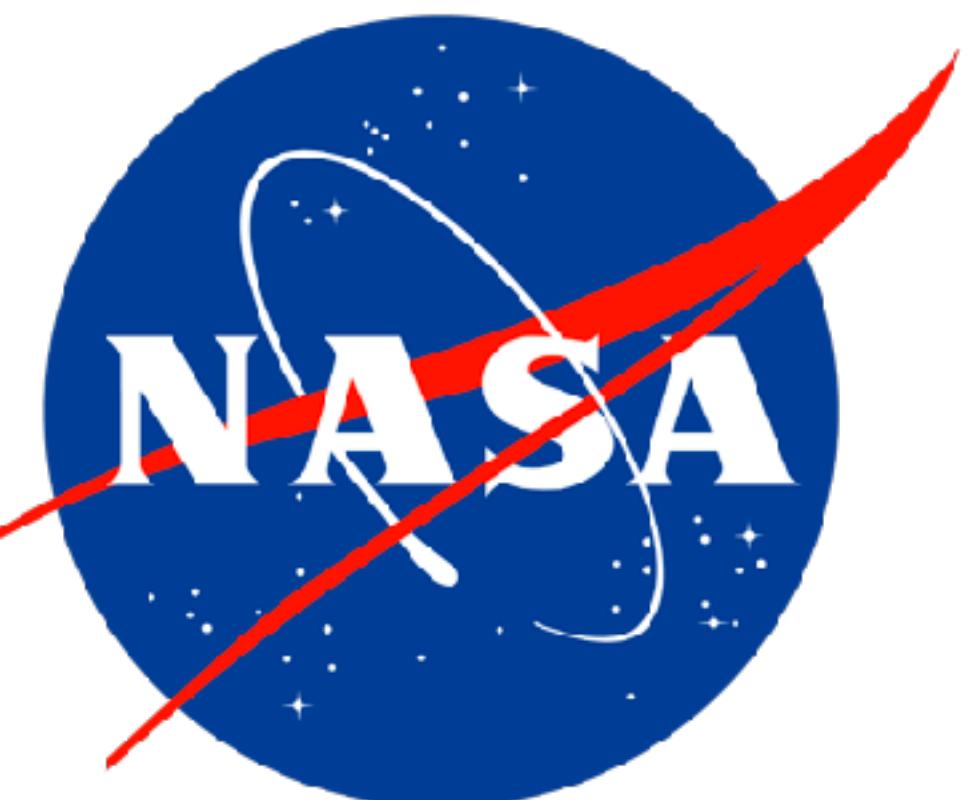
and how we use it to communicate the ways NASA's mission extends beyond space exploration to study the Earth.

Alex Gurvich, Ph.D.

www.alexbgurvi.ch

Senior Graphics Designer and **Visualization Specialist**

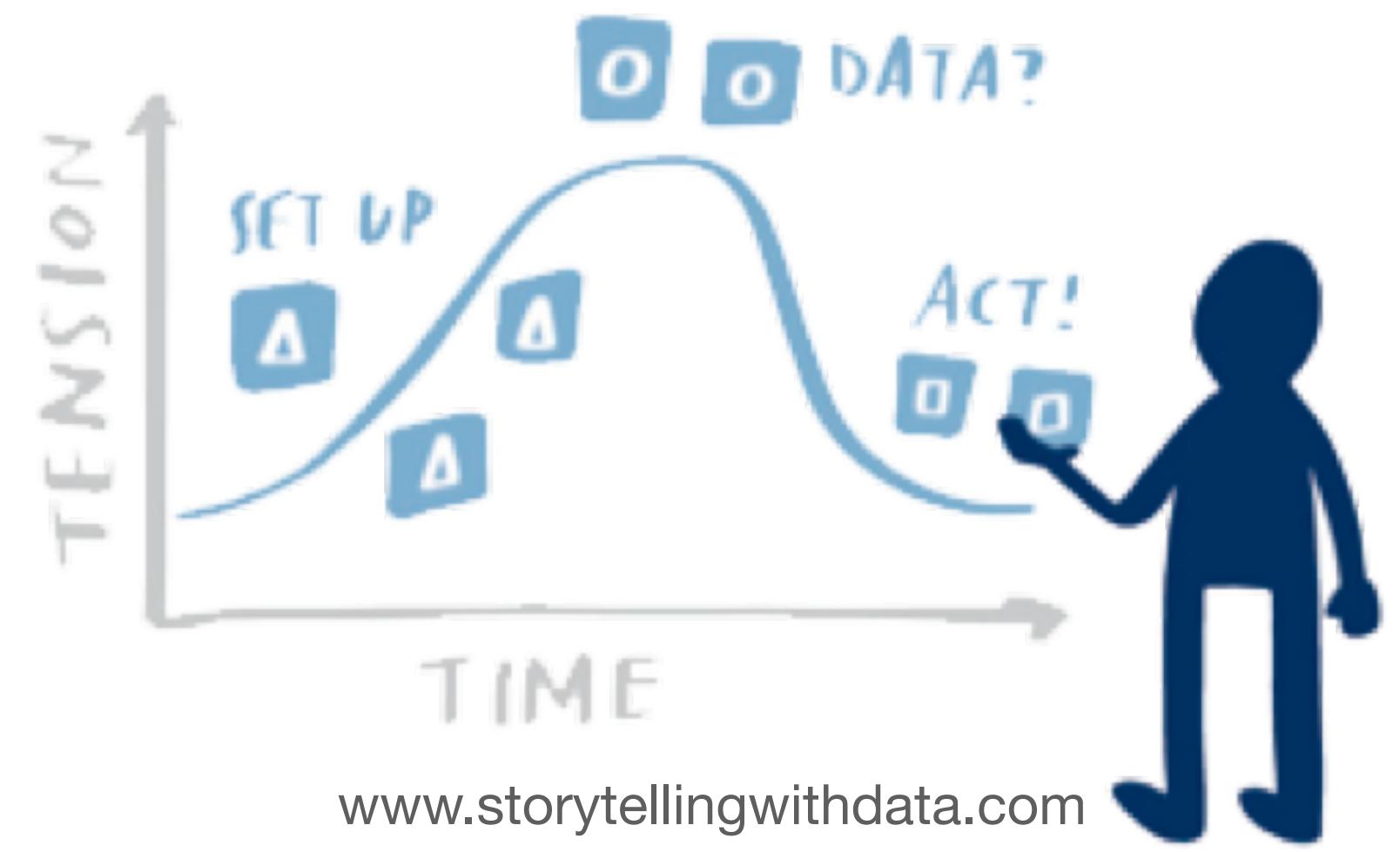
at NASA Goddard Space Flight Center's Scientific Visualization Studio



Storytelling with data is a **focused and intentional** way to **communicate key features** in data.



storytelling  data 



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Visualizations are rarely both **exploratory and explanatory**.

- Exploratory visualizations are the **tools we use for discovery**, and are often **rougher, more complicated**, and **not always well-suited** for explaining the final result.



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Time spent doesn't automatically equal impact

- The **amount of time spent** on data processing and analysis often dwarfs the amount of time spent **preparing the data for presentation**. However, all anyone else sees is the final plot; we do **ourselves and our audience a disservice** to not spend additional time optimizing the presentation.



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Data has no value on its own

- Data science empowers decision makers to **make more informed decisions**. Our role as data scientists is to **act as interpreters** by efficiently and clearly **communicating the story** hidden inside data.



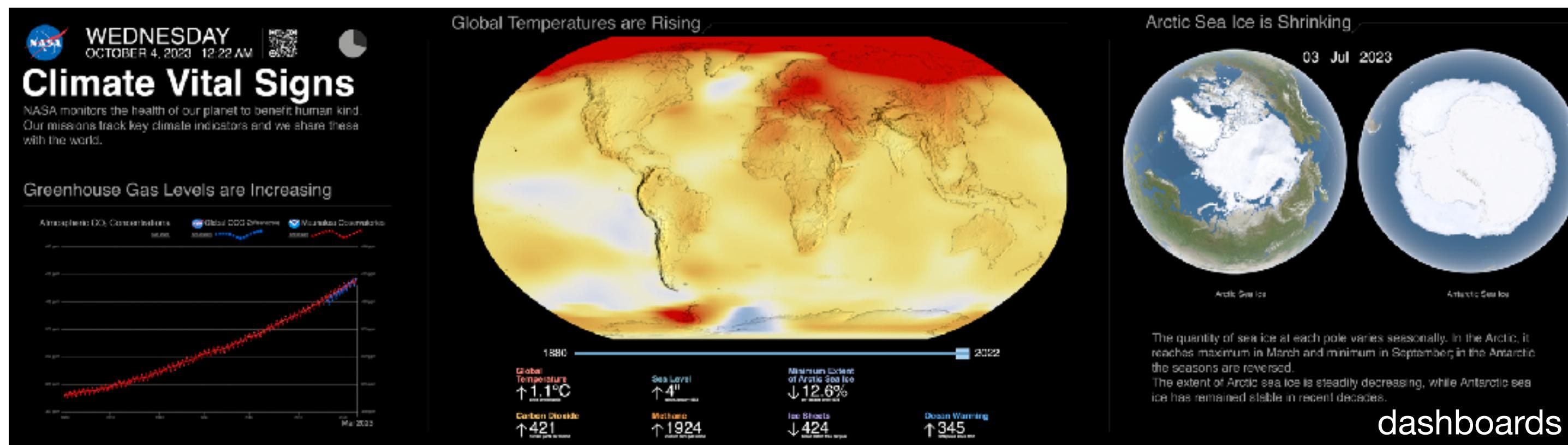
The mission of NASA's **Earth Information Center** is to put the vast quantities of available Earth data **directly into the hands of decision makers**.

The EIC has two components:

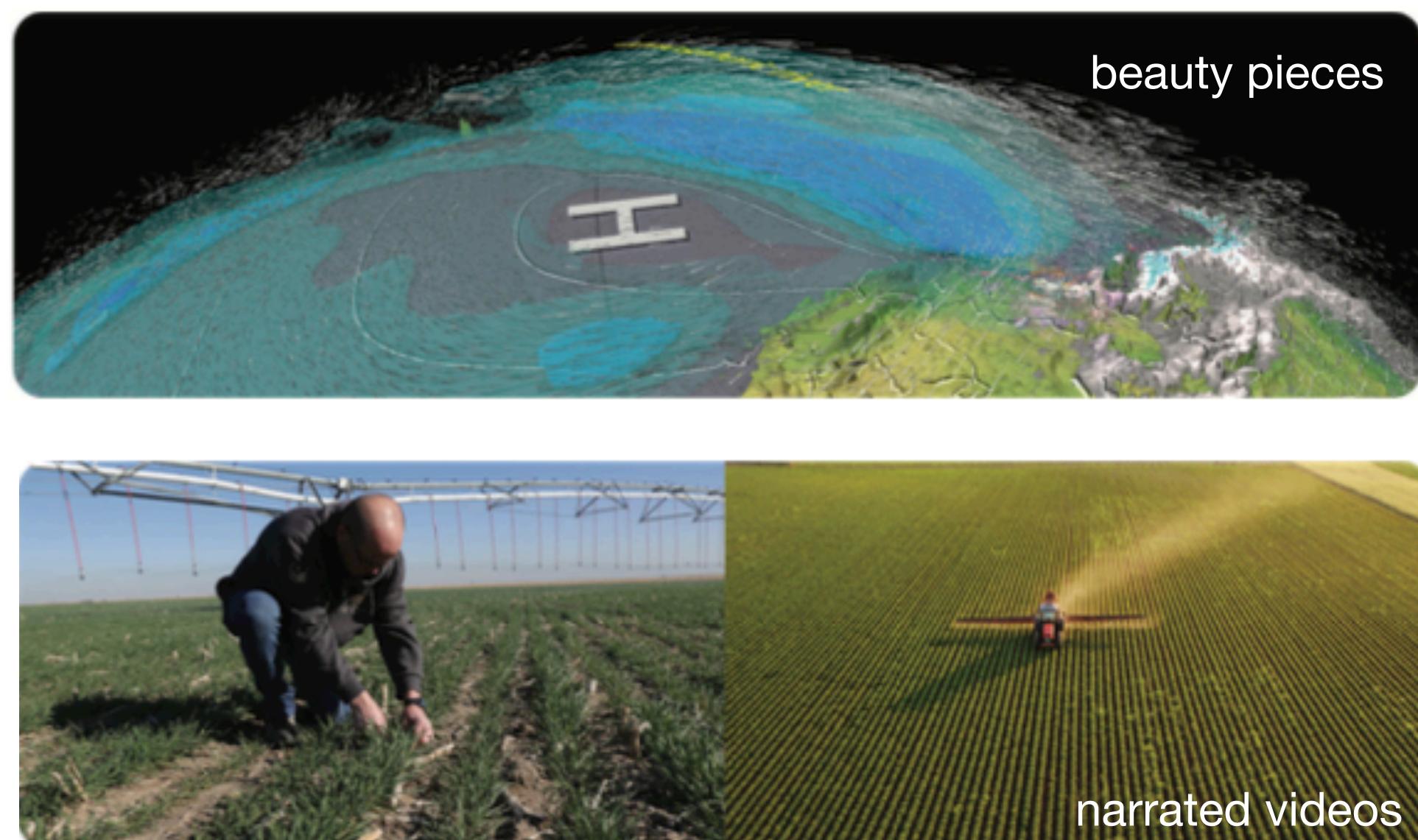
1. a **physical exhibit** showcasing how NASA's Earth observing fleet of satellites **collects actionable data** at NASA HQ.
2. a **website** highlighting the **impact of NASA data across nine focus areas**: agriculture, air quality, biodiversity, disasters, energy, greenhouse gases, sea level rise, water resources, and wildfires. go.nasa.gov/EIC

Where does storytelling come in?

Including elements of storytelling in our dashboards, beauty pieces, and narrated videos helps us **convey the impact** of NASA Earth science data in a memorable and compelling way.

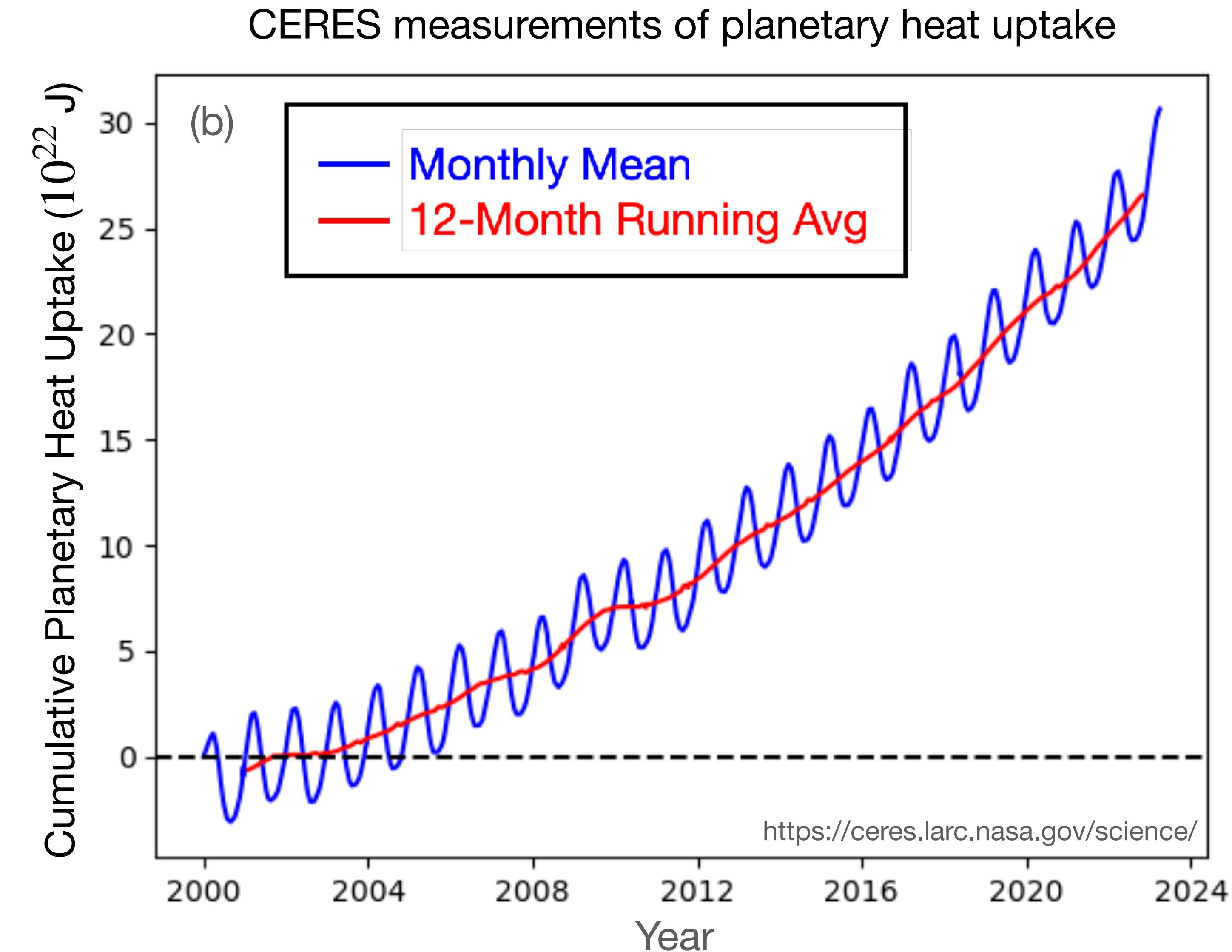


dashboards



Unfocused visualization can make readers **confused** as they **attempt to figure out** what's being plotted.

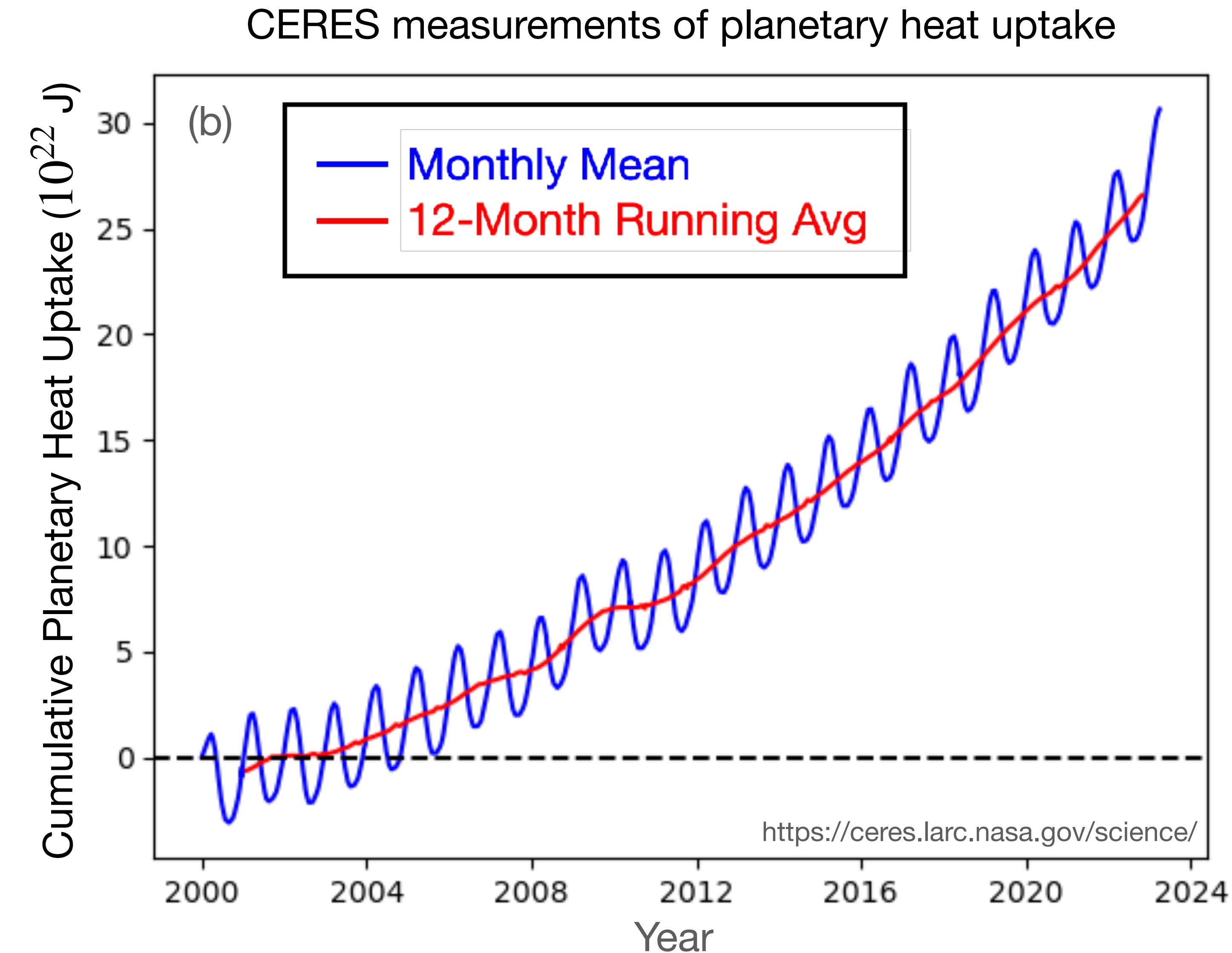
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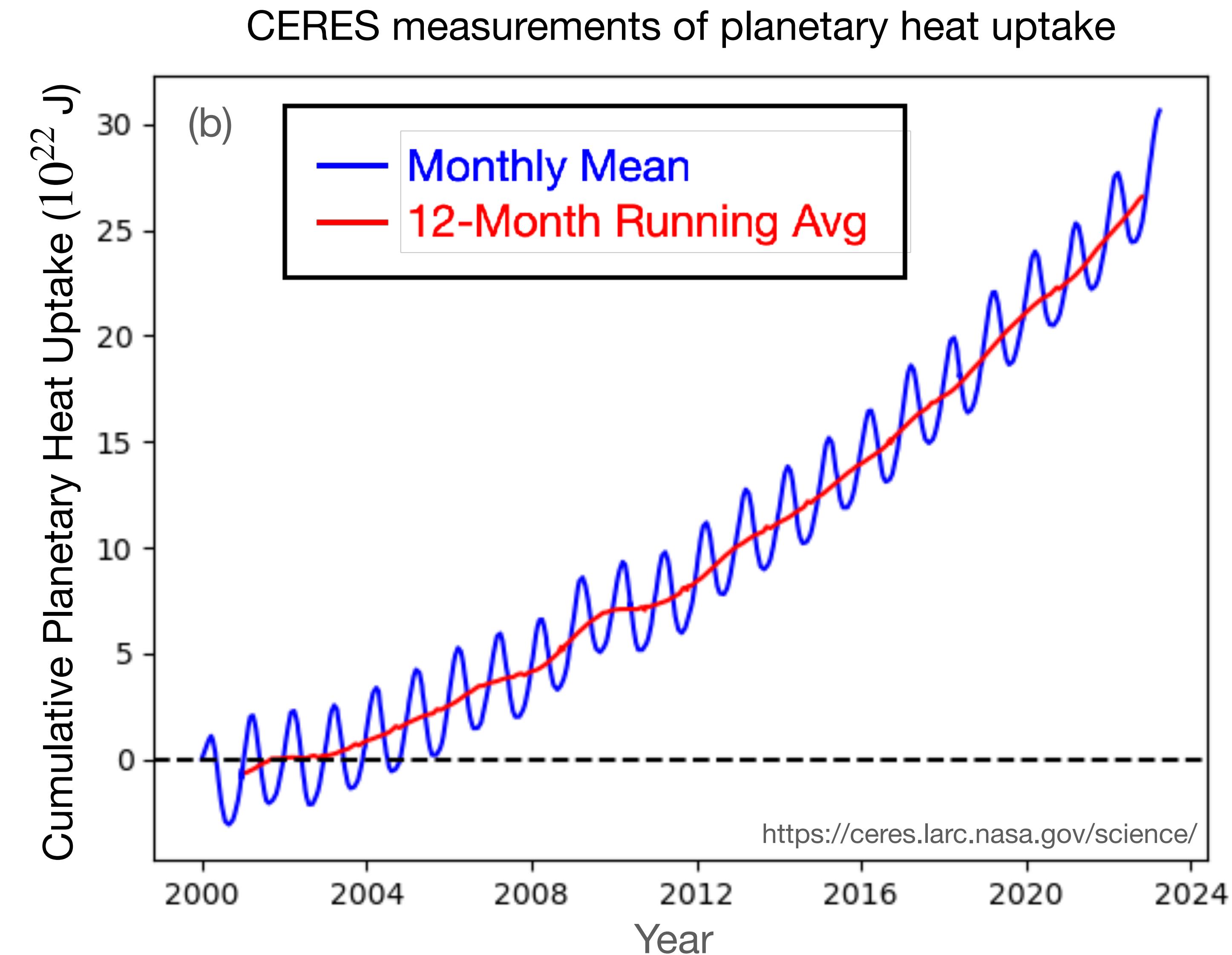
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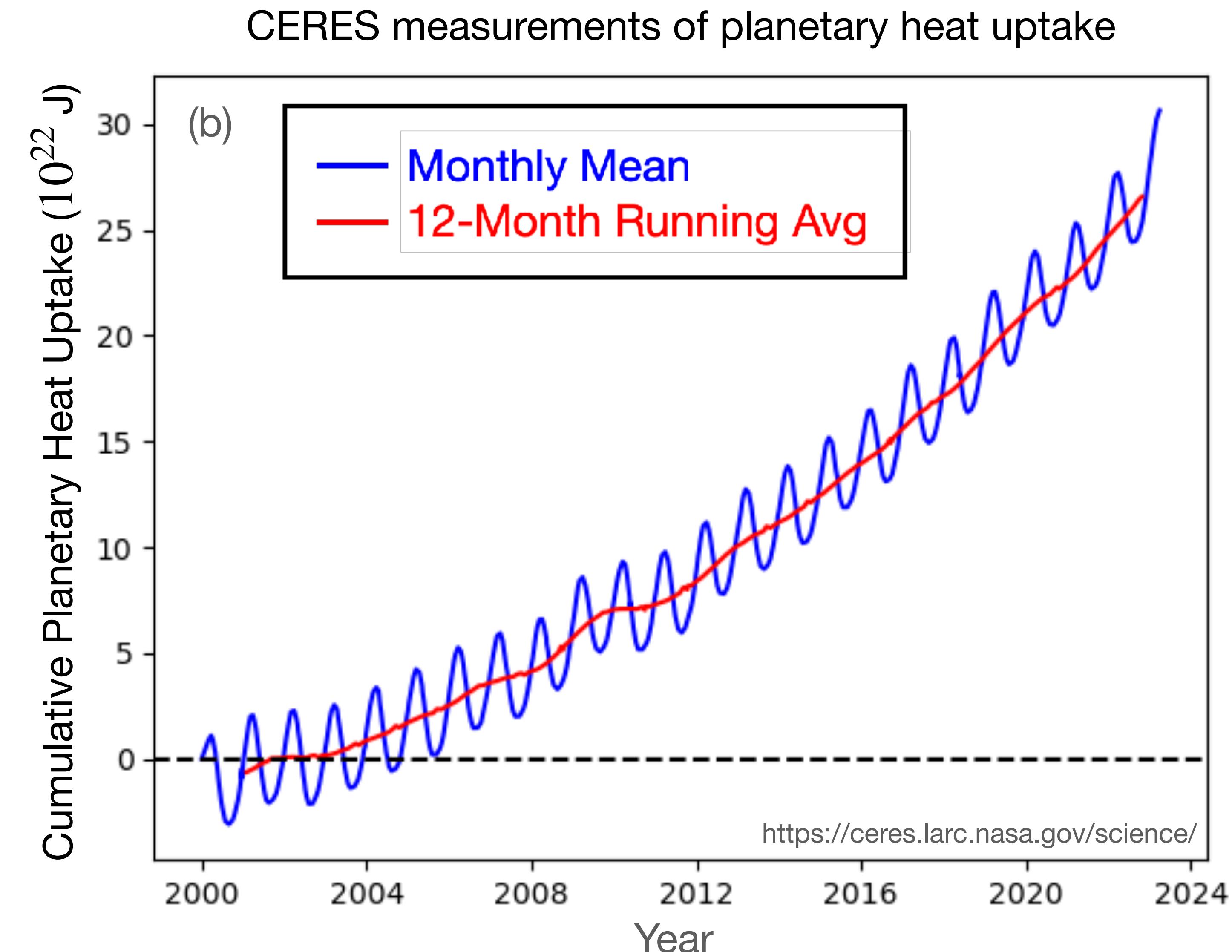
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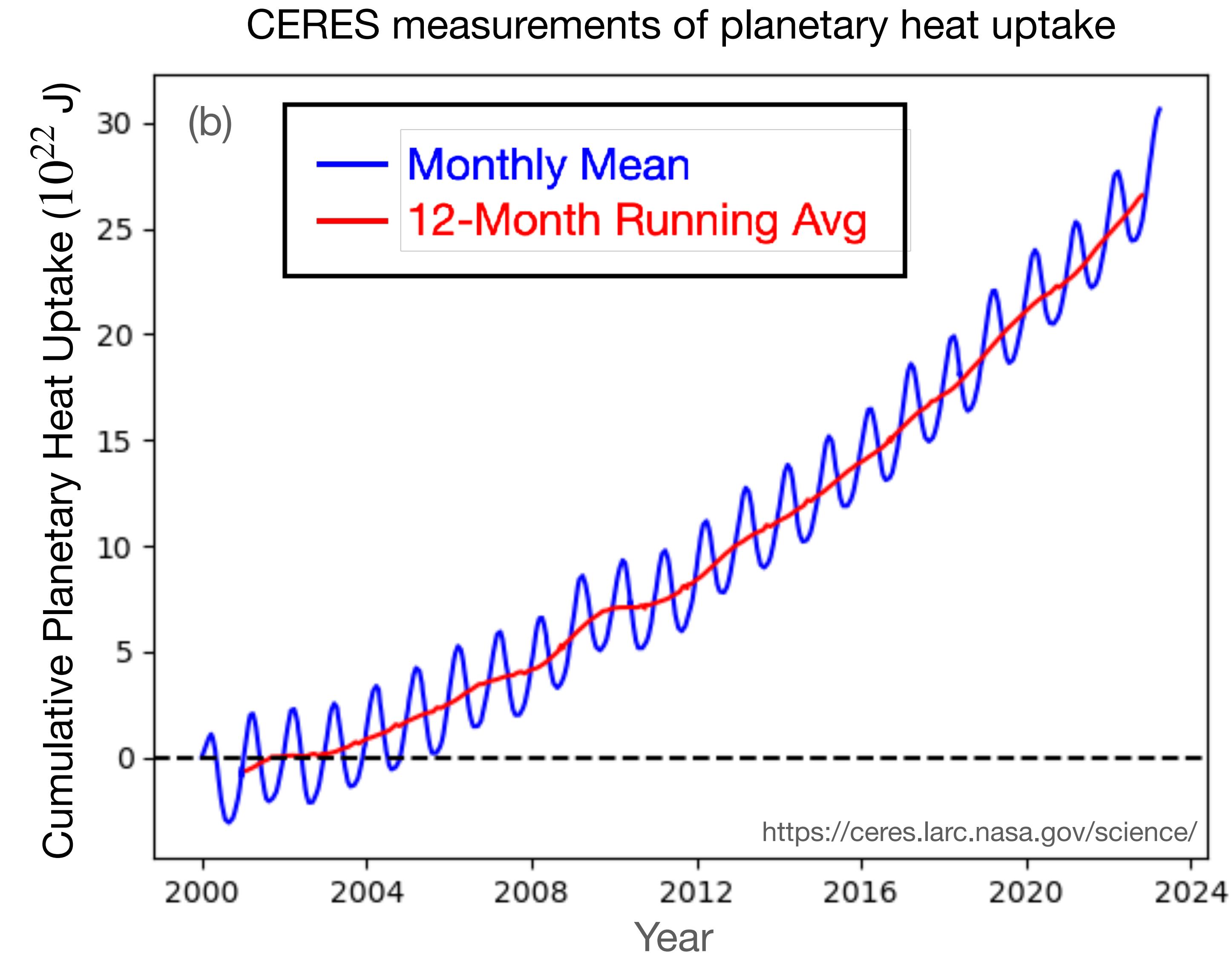
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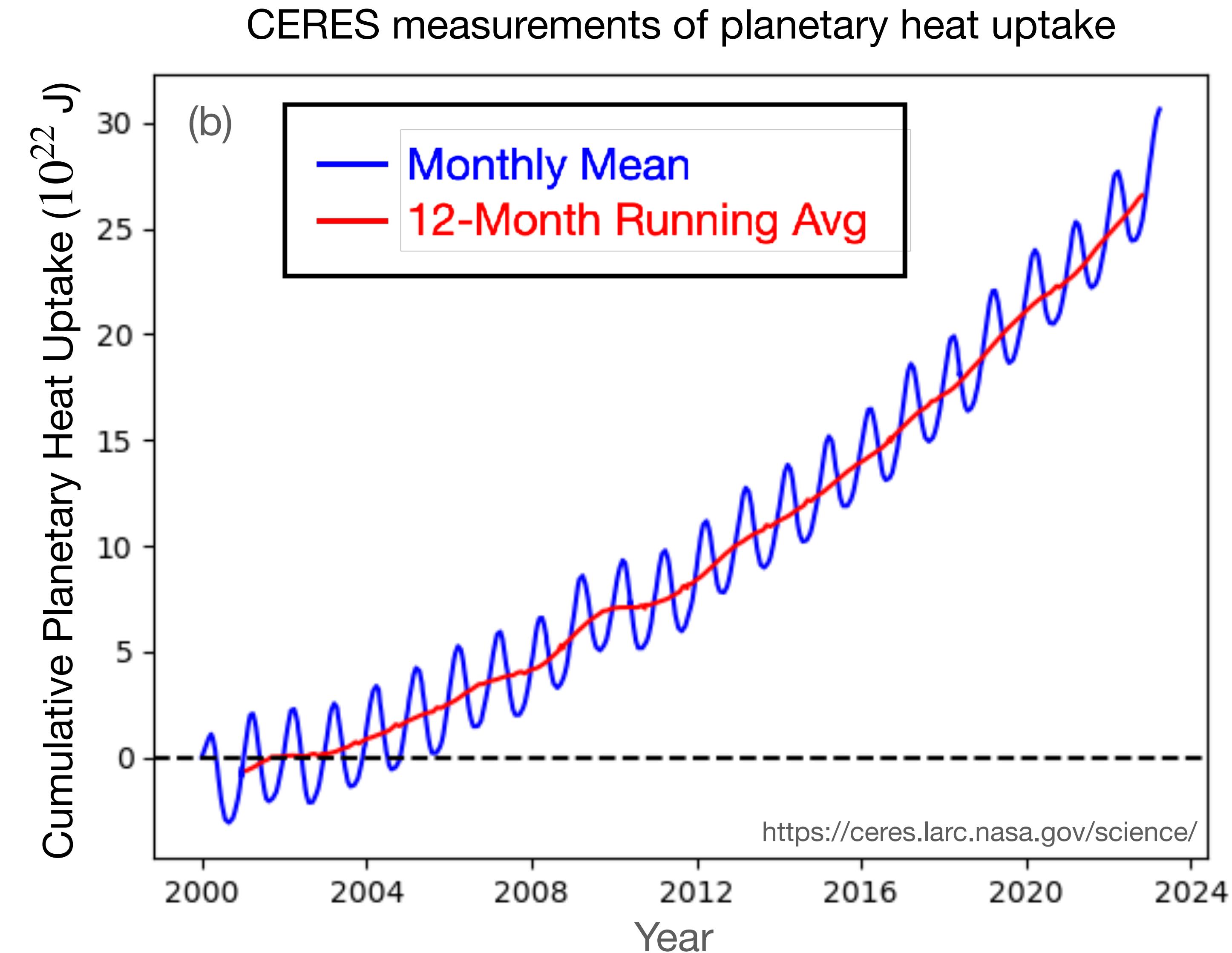
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- If the reader is doing work to understand the plot **that's brain power not focusing on the takeaway** you want them to have.



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Goal: “NASA satellite data reveals the Earth’s energy budget is becoming increasingly out of balance.”

What can we improve?

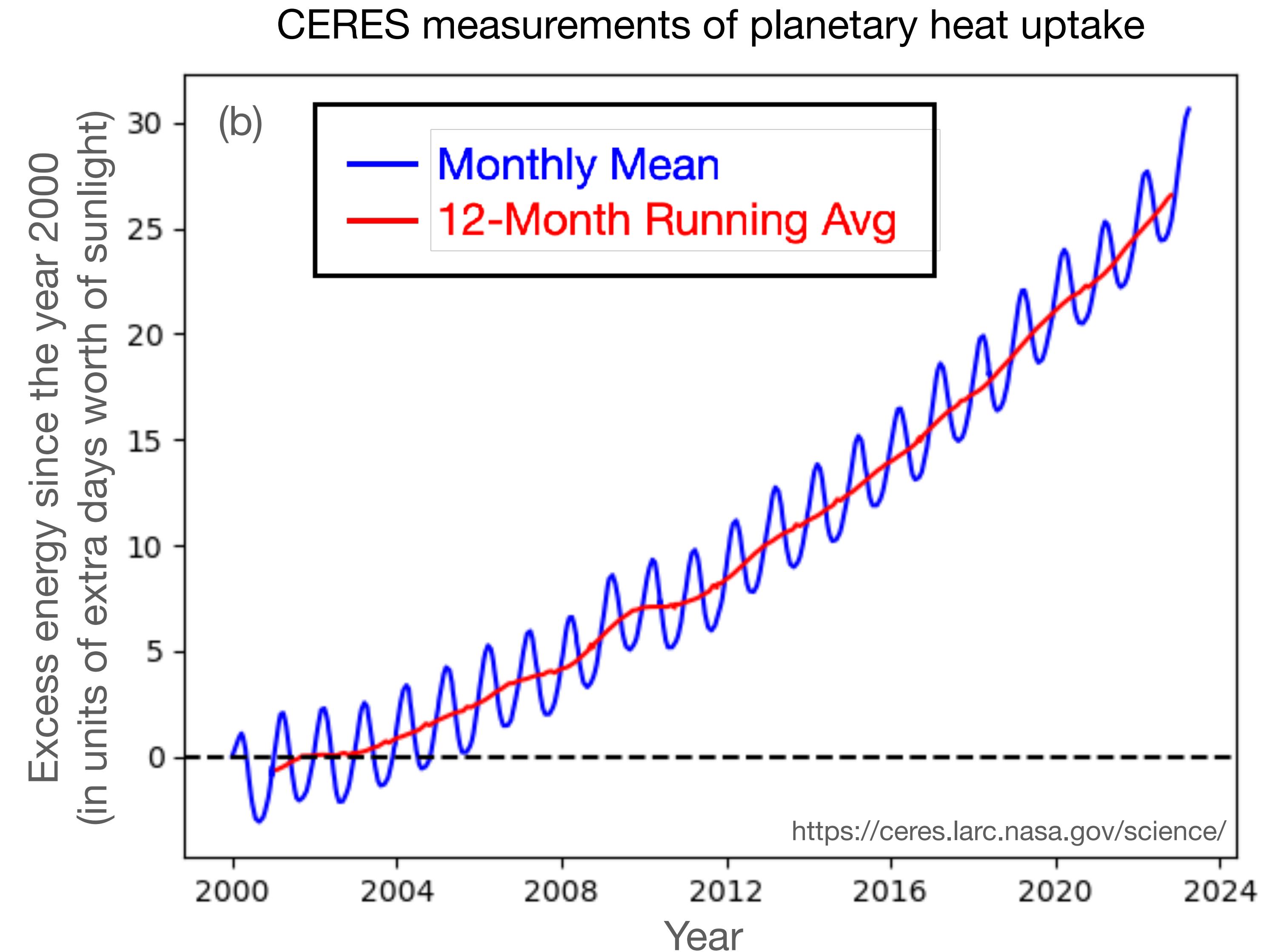


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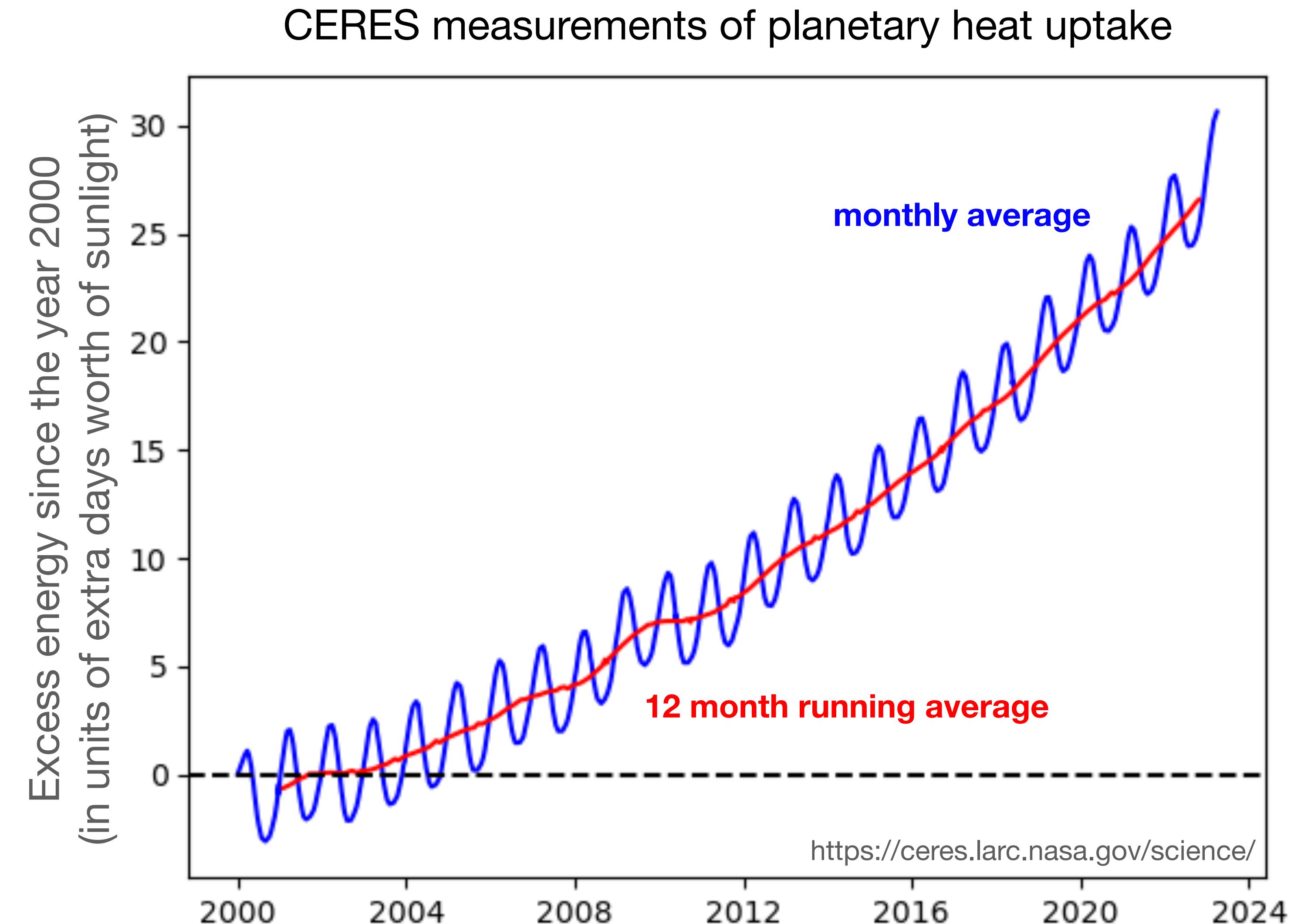


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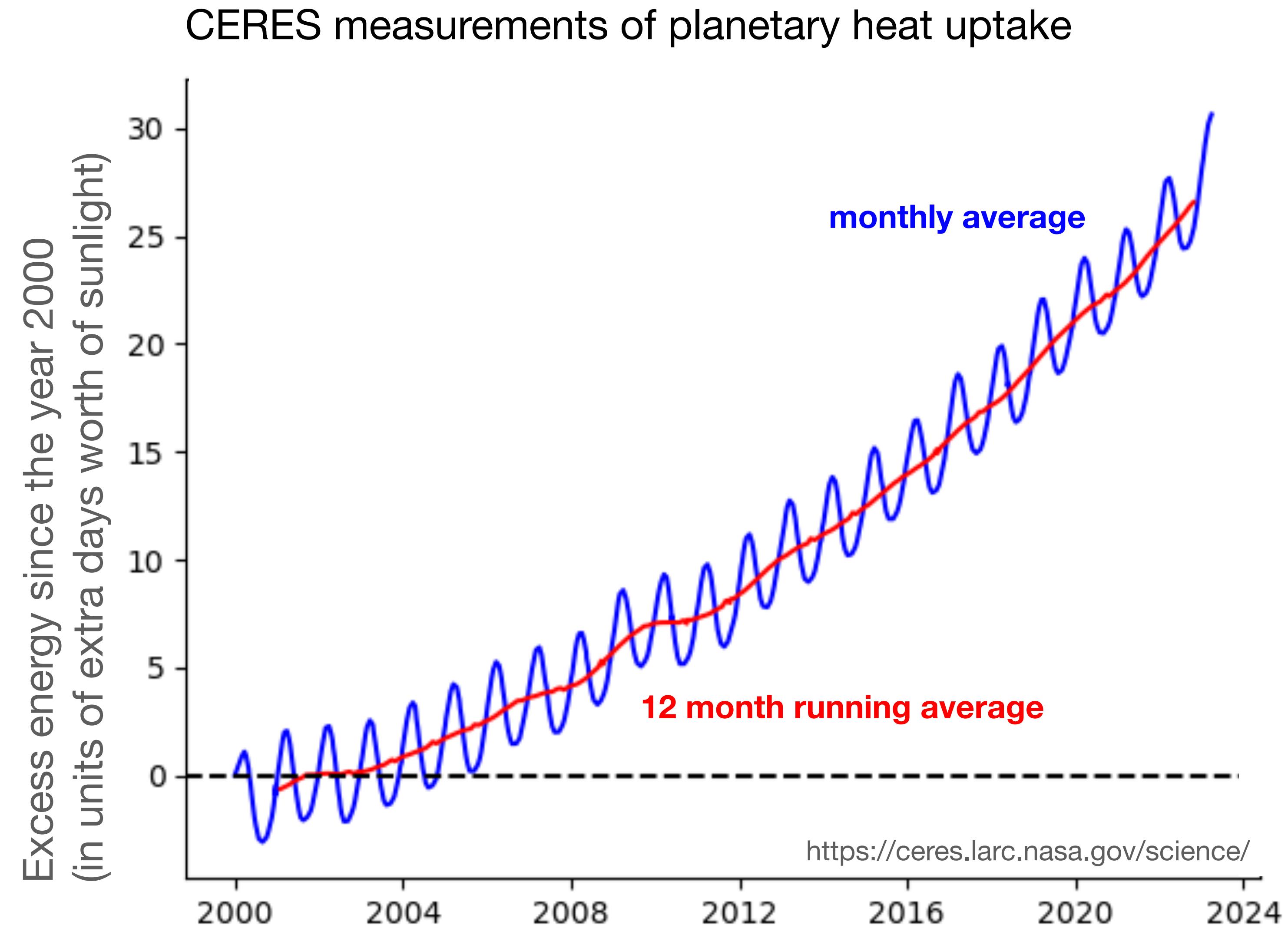


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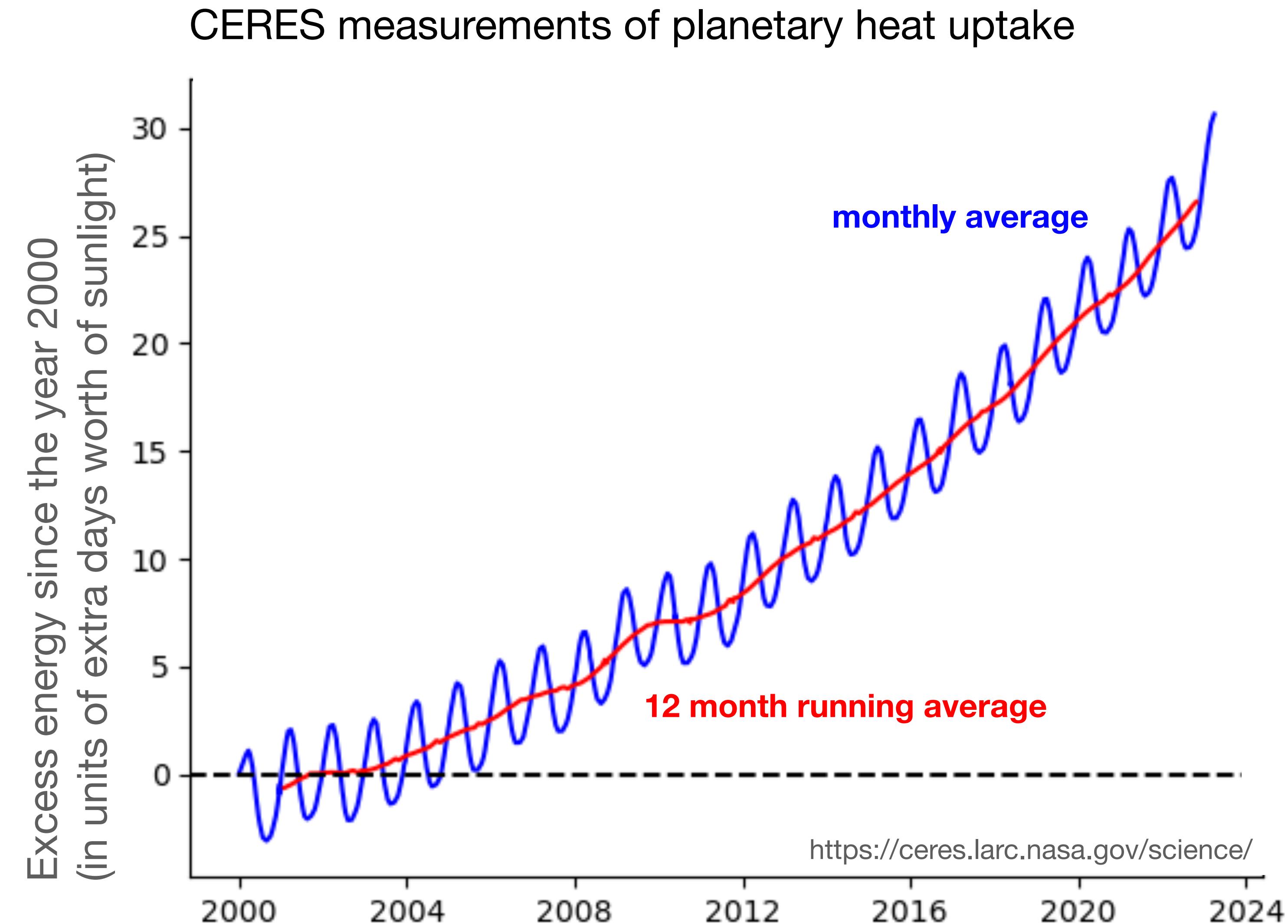
- Unintuitive units add **additional layers of abstraction** to convey the magnitude of the effect.
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- Other stylistic choices can help **reduce visual noise**, e.g. replace axis spines with left-justified titles.



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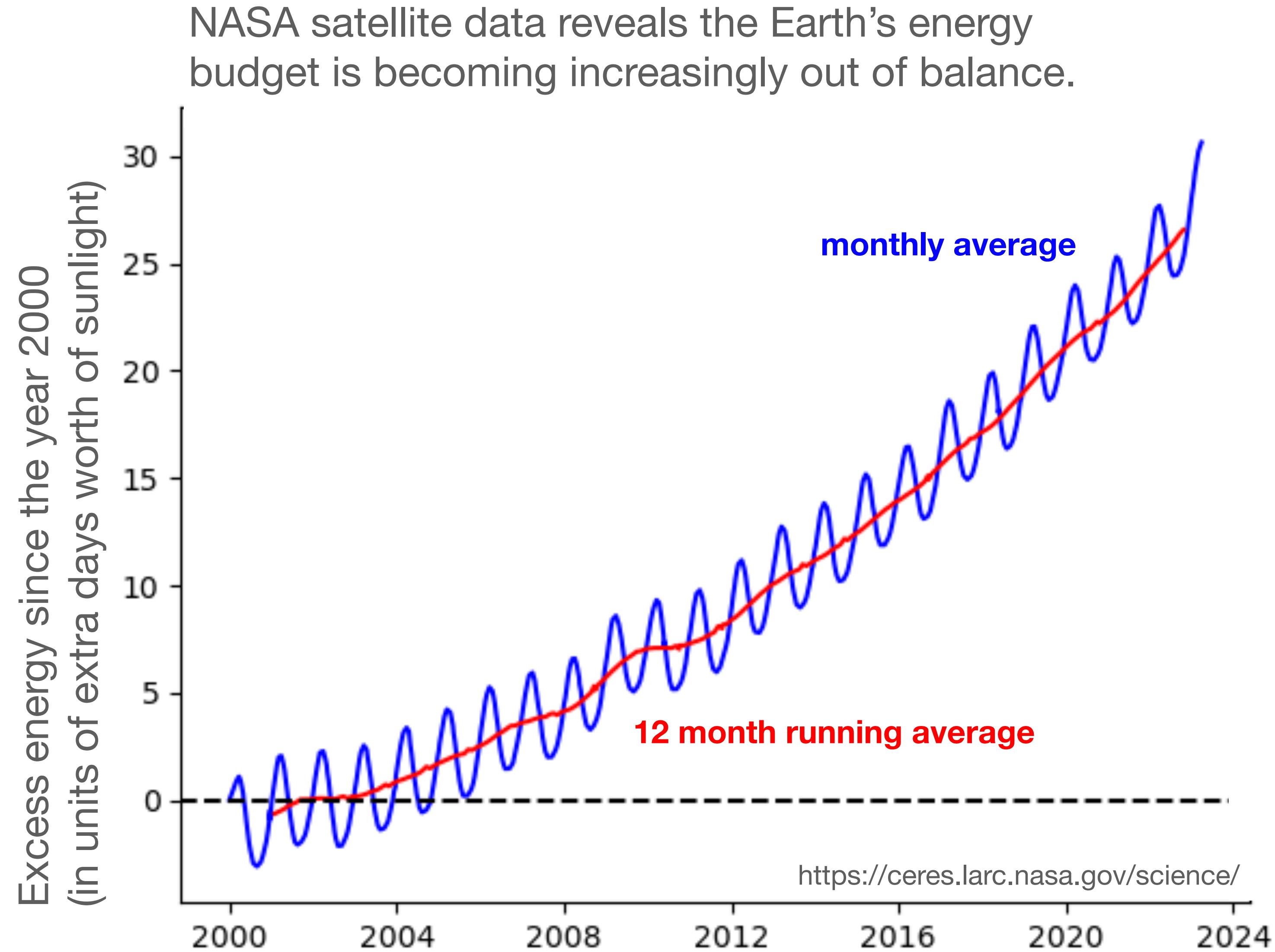


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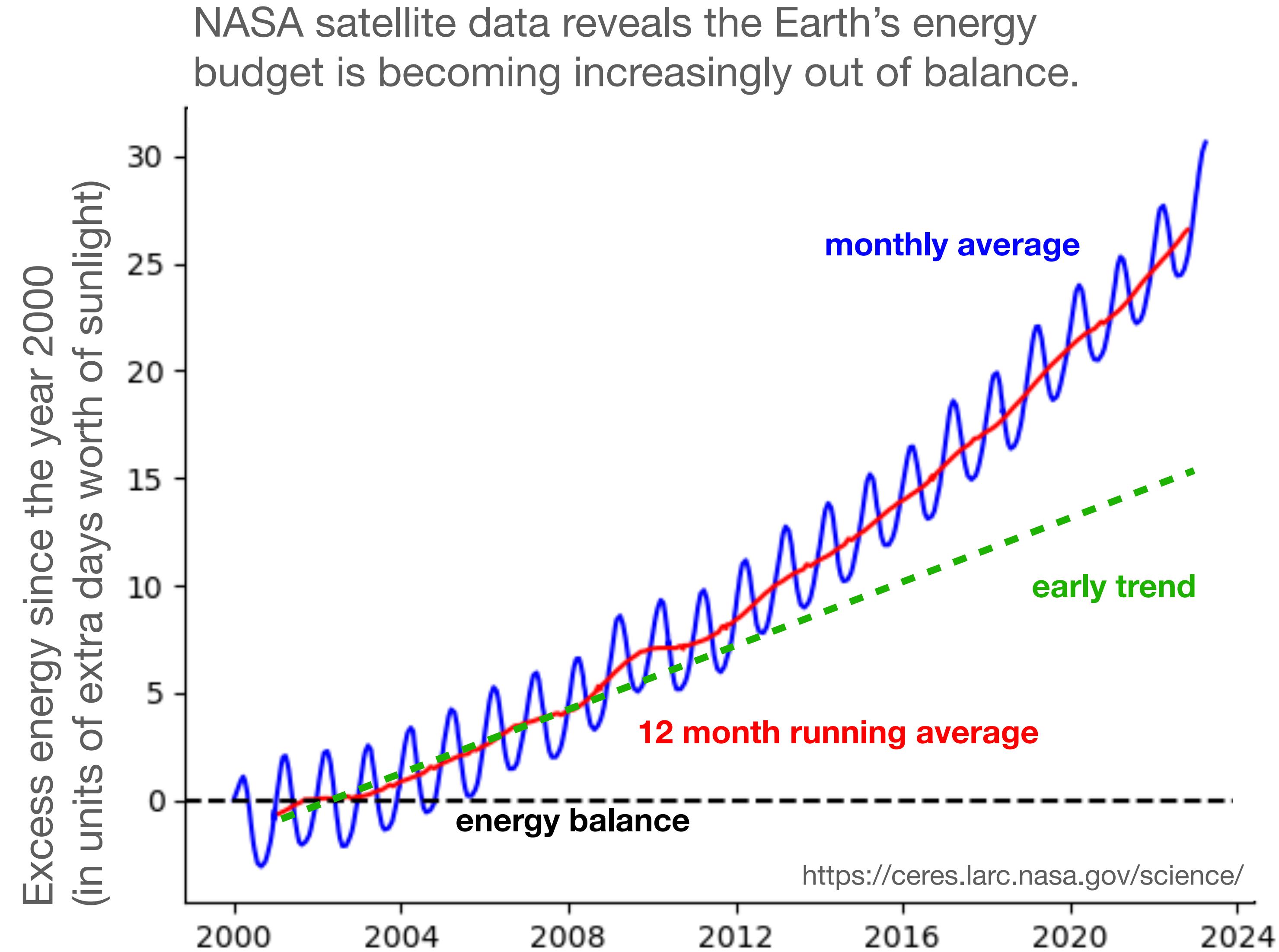


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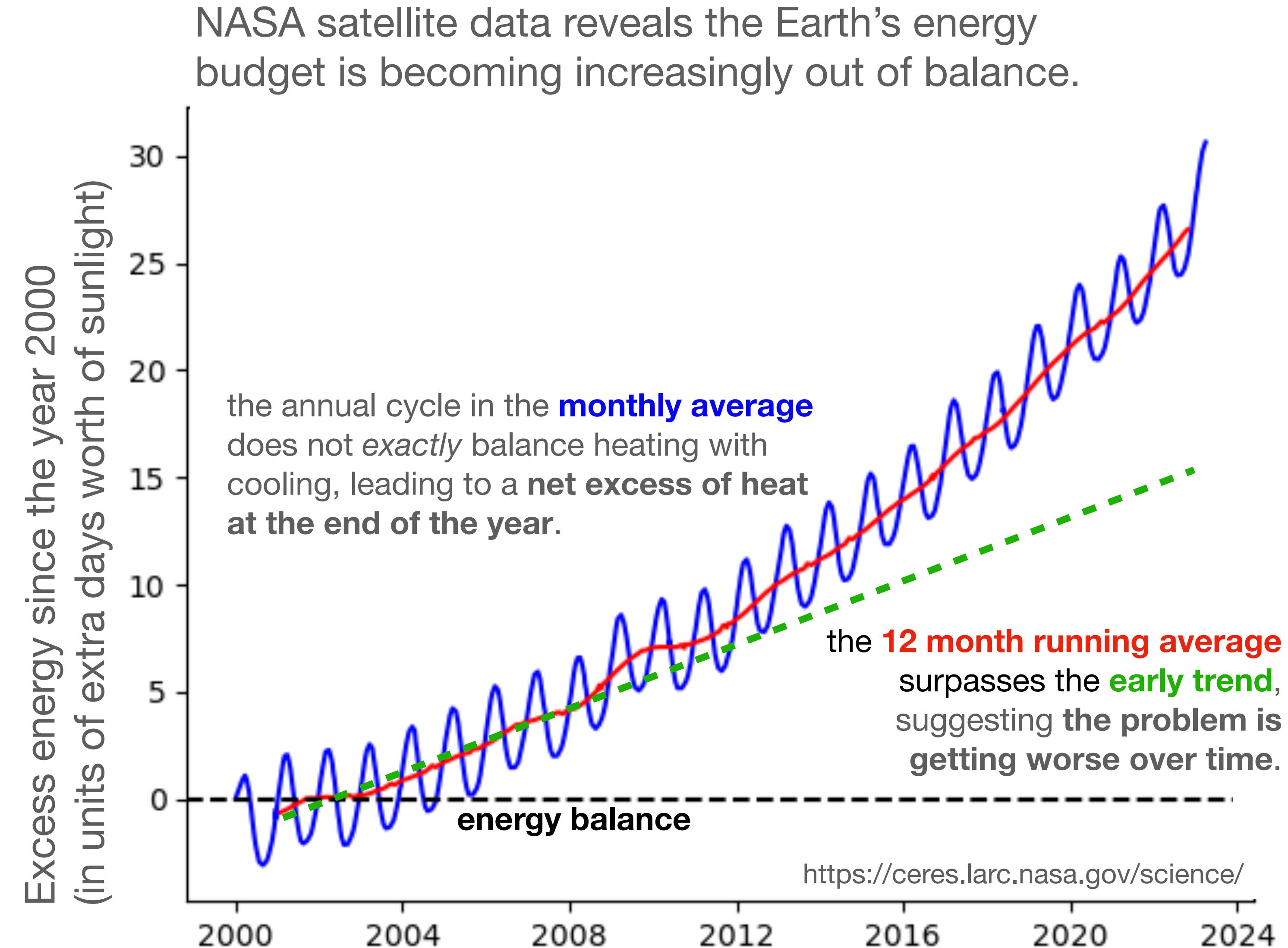


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- Use descriptive text to **highlight key features** and **guide the eye** through the graph.



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