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| **Stay Calm and Science-on****11/17/2024**  | A fire in the sky  Description automatically generated |

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ENVIROMENT

# Rapid shift in methane carbon isotopes suggests microbial emissions drove record high atmospheric methane growth in 2020–2022

[https://www.pnas.org/doi/10.1073/pnas.2411212121](https://na01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.pnas.org%2Fdoi%2F10.1073%2Fpnas.2411212121&data=05%7C02%7C%7C9aff1e25fbf1492b8c8308dd068ca623%7C84df9e7fe9f640afb435aaaaaaaaaaaa%7C1%7C0%7C638673924978081742%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=obzGFgXVfQajI3VcoDtS%2BusY8XxK9tZYXNXcepIkWcU%3D&reserved=0)

 *You might need this definition for the article above.*In geochemistry, paleoclimatology, and paleoceanography δ C (pronounced "delta thirteen c") is an isotopic signature, a measure of the ratio of the two stable isotopes of carbon

# After decades of lithium-ion batteries dominating the market, a new option has emerged: batteries made with sodium ions. [LithiumIonAlternatives.pdf](https://1drv.ms/b/c/ba0b2701cc8698de/EdESOs9utu5EidVZRgsVKpoBe8Uw8Ktplu_kol3JOMeylQ?e=b7w86H)

Scientists have been researching alternatives to lithium for years. Much of the world relies on this kind

of battery, but the mining and processing of its materials can be harmful to workers, local communities

and the environment. Sodium has recently emerged as one of the more promising options, and experts say the material could be a cheaper and more environmentally friendly alternative to lithium.

Air Conditioning: How Solid State Cooling Could Change Everything
[https://www.youtube.com/watch?v=GHl6buYjZGE](https://na01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3DGHl6buYjZGE&data=05%7C02%7C%7Cfffee5821bcf4c33c58508dd03950ac3%7C84df9e7fe9f640afb435aaaaaaaaaaaa%7C1%7C0%7C638670660843972923%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=%2Fovb6QNvQj9%2FShkSKv%2FO%2Bk2vR%2Fvjpsg1vf6xAFny%2BvE%3D&reserved=0) 16 minutes

CIVILIZATION

Political Science: Is Every Civilization Doomed to Fail?
[https://www.youtube.com/watch?v=uqsBx58GxYY](https://na01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3DuqsBx58GxYY&data=05%7C02%7C%7Cfffee5821bcf4c33c58508dd03950ac3%7C84df9e7fe9f640afb435aaaaaaaaaaaa%7C1%7C0%7C638670660843989099%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=vPfqpTX7UkvYUaZyvjUrEhR4ixRCXWMjcf35OaHSEsI%3D&reserved=0) 22 minutes

AI
Just for fun: This Rant Was Written By A.I.
[https://www.youtube.com/watch?v=g\_UzVG-1NRI](https://na01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3Dg_UzVG-1NRI&data=05%7C02%7C%7Cfffee5821bcf4c33c58508dd03950ac3%7C84df9e7fe9f640afb435aaaaaaaaaaaa%7C1%7C0%7C638670660843999212%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=ntnCvXbhebcLUoRx%2BxutKn0%2Fg34vGmRF74iJHTBKpaQ%3D&reserved=0) 3 minutes with Lewis Black! BIOLOGY

BIOLOGY

#  [Frontiers | Microbial community structure in recovering forests of Mount St. Helens](https://na01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.frontiersin.org%2Fjournals%2Fmicrobiomes%2Farticles%2F10.3389%2Ffrmbi.2024.1399416%2Ffull&data=05%7C02%7C%7Cfffee5821bcf4c33c58508dd03950ac3%7C84df9e7fe9f640afb435aaaaaaaaaaaa%7C1%7C0%7C638670660844009601%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=SKSpaLOST3989zM1mM6C3RLhH45lGF7fxItu4mrGFhM%3D&reserved=0)

# [How a Team of Gophers Restored Mount St. Helens After Its Catastrophic Eruption With Less Than a Day of Digging | Smithsonian](https://www.smithsonianmag.com/smart-news/how-a-team-of-gophers-restored-mount-st-helens-after-its-catastrophic-eruption-with-less-than-a-day-of-digging-180985459/)

# [How Wolves Saved Yellowstone](https://www.youtube.com/watch?v=gc52l5ZcAJ0) 5 minutes

Science in Social Media
[Top Science Influencers on Instagram - IZEA](https://izea.com/resources/instagram-science-influencers/)

[24 Best Science TikTok Accounts of 2024 - Genius Lab Gear](https://geniuslabgear.com/blogs/for-scientists/best-science-tiktok-accounts)

[Ten Scientists to Follow on TikTok](https://hellobio.com/blog/ten-scientists-to-follow-on-tiktok.html)

[free Harvard online courses - Search](https://www.bing.com/search?q=free+Harvard+online+courses&FORM=AWRE)

**NOTES:**

o   Science-on will start at 7PM, July 21, 2024 and we will use the Google Meet platform to meet.

o   I will send an email from Google Meet about 10 Minutes before the meeting. So “Around 7..a little before” you will get an email with something to click on.

o   \*\*\*Please be sure your microphone and camera are on before you click on the Google Meet invite.

**RULES**:

o   Although this is science and that means facts are inherent…We will probably not all agree on everything but we all must be respectful.  So the one rule we should uphold is that discussion is great and passion is too, but if the heat gets too hot while we are talking and goes in the direction of blustering name calling or similar --well…we will have to stop that discussion.

o   Also along the lines of respectfulness…If you provide a topic but cannot attend we will hold off on discussing until you are there.