

LIGHTNING DATA CENTER MINUTES

April 14, 2023

ST. ANTHONY HOSPITAL, LAKEWOOD, COLORADO

Monthly Quote: “Of the 292 strikes that were recorded by the National Weather Service from as far south as Monterey Bay up to the coast of Rockport, 205 were positive strikes and 87 were negative.” - Sean Miller, NWS Meteorologist, citation below.

Members present: Clark, Swanson, Yarnell, Wachtel and Crow. Meeting began at 12:05 PM and ended at 12:55 PM.

1. The LDC is accepting donations, either as cash or check. If you donate via check, please make your check payable to Steve Clark at 755 S. Clinton Street, #2A; Denver, CO 80247. He will cash the check and keep the cash holdings specifically for the LDC. When the LDC incurs expenses, Steve will pay for services rendered through his bank account using the cash from LDC's cash holdings. A log will be maintained detailing the inflow and outflow of monies. LDC currently has \$742.00 in cash, due to a purchase of lightning data.
2. **Save the date! The meeting on Friday, June 9 will be devoted to honoring the passing of Dr. Cherington. I would like to give time during the May meeting to finalize our plans for the June meeting. In addition, I would like to have as many members as possible here in the Denver area physically attend the June meeting at the hospital.**
3. Dr. Phil Yarnell heard from an electric shock survivor. A man was shocked while working on residential electricity. The current entered through his right palm thumb and exited through the left calf. He had little if any burning on his hand and had a half-dollar sized scar on his calf beneath the knee. He was taken to the hospital and was surprised when he was kept for only 19 hours. The doctors were surprised that he had no internal damage. He thought he would be there for several days. He wrote asking if anyone could explain why he was not hospitalized for longer than he was. Phil said the main reason was because the burns he had were pretty minor.
4. Dr. Yarnell also heard from an individual who would possibly be working with a lightning strike survivor. The individual presented Phil with a list of sequalae and asked if there were medications specific to the sequalae. Phil was also asked if there were any practitioners in the area where the patient lived and what a typical course of treatment might look like. Phil replied he did not know of any practitioners in the area and that treatment is usually done symptomatically with both therapy (cognitive, behavioral, and group) and medications (anti-anxiety and anti-depression). Phil said he was available to assist if needed.
5. Carl Swanson brought several items to our attention. Two lightning researchers in Brazil captured upward streamers during a lightning strike to a building. A video camera was set up to capture 40,000 frames per second. They captured 31 of the streamers at a distance of approximately 150 feet from the camera.

6. Carl also found this video of upward propagating lightning striking the One World Trade Center building in New York City. The building, the tallest in the U.S., was hit 189 times between 2015 and 2020, which makes it the second most hit building behind Willis Tower in Chicago.
7. A research scientist at the University of South Florida found phosphorus in a unique oxidation state inside of a fulgurite found in a Florida backyard following a lightning strike. Phosphorus has two oxidation states in the natural environment, +5 such as that found in phosphates and -1 such as that found in phosphides. Here, the existence of phosphorus in the +3 oxidation state is documented in a mineral from a fulgurite.
8. Cynthia Weiss had asked about writing a grant to see if Barb Stemple could be reimbursed for her out-of-pocket expenses associated with printing of our lightning safety brochure. Steve Clark reached out to hospital administration asking if the hospital had any grant writers. He was told there are no grant writers due to layoffs at the hospital last summer and fall. Further research showed St. Anthony's parent companies, Centura and CommonSpirit Health, will be separating. St. Anthony will be operating under CommonSpirit Health. It is not known when that transition will be complete. In the interim, Steve suggested he would be willing to send Barb some money to help offset her costs.
9. LDC welcomes your questions. Please send them via e-mail to Steve Clark at sclarktoto@gmail.com. Your medical questions will be forwarded to Dr. Phil Yarnell for his review and will usually be taken up for discussion in the next month's meeting. Please be advised any questions posed are for the general consideration by the group and do not constitute a formal medical opinion. If a formal evaluation is requested, arrangements can be made directly with Dr. Yarnell. If you have a medical emergency, please call 911 or your local EMS.
10. Questions, comments, error notifications, and critiques of these minutes are welcome. Please send them to Steve Clark. Please keep the communications professional and respectful. They will be forwarded to the appropriate author(s) of the minutes and addressed accordingly.
11. LDC Disclaimer: These minutes do not represent official positions of the LDC or its members. They simply reflect the comments made at the meeting. Furthermore, the LDC does not implicitly or explicitly recommend or endorse any product or service. Any product or service presented in these minutes is done so for purposes of discussion and analysis. The merit (or lack thereof) is open for the consideration and review by the entire membership.
12. Next meeting: Friday, May 12, 2023, from 11:45 AM to 1:00 PM MDT.

Respectfully Submitted,
Steven E. Clark, Consulting Meteorologist

Lightning Links

This is a monthly listing of periodicals, websites, and videos about lightning and allied areas from a variety of sources. A headline or description is listed, followed by the link. Please note that some of the links are perishable, which means you'll need to go to the source for the information.

Cary Institute of Ecosystem Studies, 2023: In the Tropics, Woody Vines May Make Lightning More Deadly for Forests. *Phys.org*. March 27, 2023.

Link: <https://phys.org/news/2023-03-tropics-woody-vines-lightning-deadly.html>

Gora, E., S. Schnitzer, P. Bitzer, J. Burchfield, C. Gutierrez and S. Yanoviak, 2023: Lianas Increase Lightning-Caused Disturbance Severity in a Tropical Forest. *New Phytologist*. March 23, 2023.

Link (summary only): <https://nph.onlinelibrary.wiley.com/doi/epdf/10.1111/nph.18856>

Bakalar, N., 2023: One of the Luckiest Lightning Strikes Ever Recorded. *New York Times*. March 28, 2023. Link: https://www.nytimes.com/2023/03/28/science/lightning-rod-video.html?unlocked_article_code=kadyrbsWE7ScLE3y5Som1kjfAmIFlwCIsOUUV-ojHPvKd9WIPluYsthXXpctSOSnt_xXMkX1vmV4KOKkU2Qbt9DsAvnB07o_kNXcPzmDNGLxxpUbXIUkSpTCLF4BVkQMP_zHYVcuh4wOgN_GXaO4KMrsAtECMTHp4jlvXfdXVJMpkZncafuUFQ9vv47RP7gR8mN9_avCZTuNS4gRkDlaMtBUwA2xCkk7KtnaX0IpuV7gqnlFRiuGb68St6qyemH_6R1KrCH0fTwsUDXM0--7a0_T_yurKaEgW1ofA5j6v3x97dVyTjVq5sUeY_Qv16EkDkg-VuxkUnGhJGzThU&smid=url-share&fbclid=IwAR0cyjtE5rtDuOdQQvU_bbWhHomAvz9pMhvgoXHu5A3y-jZ3XZRp07gWjwU

Saba, M., D da Silva, J. Pantuso and C. da Silva, 2022: Close View of the lightning Attachment Process Unveils the Streamer Zone Fine Structure. *Geophysical Research Letters*, December 4, 2022.

Link: <https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2022GL101482>

Sterpka, C., J. Dwyer, N. Liu, N. Demers, B. Hare, O. Scholten and S. ter Veen, 2022: Ultra-Slow Discharges That Precede Lightning Initiation. *Geophysical Research Letters*, December 23, 2022.

Link: <file:///C:/Users/stevepc/Downloads/Geophysical%20Research%20Letters%20-%202022%20-%20Sterpka%20-%20Ultra%20Slow%20Discharges%20That%20Precede%20Lightning%20Initiation.pdf>

Jewell, Z., 2023: WATCH: Lightning Illuminates NYC Sky As Bolt Strikes One World Trade Center. *Daily Wire*. April 1, 2023. Link: <https://www.dailywire.com/news/watch-lightning-illuminates-nyc-sky-as-bolt-strikes-one-world-trade-center>

Abad, D., 2023: Florida Lightning Strike Results in Groundbreaking Find, Researcher Says: 'Never Seen This...on Earth'. *WATE-TV*. April 12, 2023. Link: <https://www.wate.com/news/nexstar-media-wire/florida-lightning-strike-results-in-groundbreaking-find-researcher-says-never-seen-this-on-earth/>

Bindi, L., T. Feng and M. Pasek, 2023: Routes to Reduction of Phosphate by High-Energy Events. *Communications Earth and Environment*. March 14, 2023. Link: <https://www.nature.com/articles/s43247-023-00736-2>

Vazquez, T., 2023: West Melbourne Man Struck, Killed by Lightning While Boating. *Florida Today*. April 17, 2023. Link: <https://www.floridatoday.com/story/news/2023/04/17/fwc-west-melbourne-man-struck-killed-by-lightning-while-boating/70121619007/>

Bartlett A., 2023: 'Big, Strong Bolt': Hundreds of Lightning Strikes Seen for Miles Across Bay Area. *SFGATE*. March 5, 2023. Link: <https://www.sfgate.com/weather/article/san-francisco-bay-area-lightning-thunder-17821192.php>
