

# LIGHTNING DATA CENTER MINUTES

April 9, 2021  
ST. ANTHONY HOSPITAL  
[www.lightningdatacenter.org](http://www.lightningdatacenter.org)

Monthly Quote: “The driver said they heard a large boom, and everything in the dash started flashing before the pickup shut down. The man coasted to the shoulder of SH31, and his passenger noticed flames coming from under the dash.” - WCSC-TV. Full citation below.

Members present: Clark, Stemple, Terry, Yarnell, Wachtel and Langford. Clark moderated. Meeting began at 11:55 AM and ended at 12:45 PM.

1. **VERY IMPORTANT – PLEASE READ!** As of April 2021, we will continue to hold meetings via Zoom only through at least June. The number of COVID cases has started to rise again here in Colorado and some other parts of the country. Hospitalizations have also increased, leading to concerns about another spike. The good news is the vaccination rate in Colorado has grown steadily. Against that backdrop, state officials have allowed counties to govern their degree of openness. Hospital administration thinks July will be the earliest we can resume in-person meetings; but that depends on how well county rule works out. Stay tuned.
2. 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. At the present, the LDC has \$632.00 in cash, thanks to a \$50 donation from Michael and Nancy Cherington.
3. The International Conference on Lightning and Static Electricity is being moved from September 2021 to June 2022 in Madrid, Spain. Specific dates are not yet available.
4. The 35<sup>th</sup> Annual International Conference on Lightning Protection (35<sup>th</sup> ICLP) will be held jointly with the 16<sup>th</sup> International Symposium on Lightning Protection (XVI SIPDA). The conference will be a virtual conference to be held September 20-26, 2021. A call for papers has been issued, with a due date of April 30, 2021. The papers will be presented as prerecorded videos with live Q&A to follow. For more information on the virtual conference, please visit <https://iclp2020.org> and for submission guidance, please visit <https://iclp2020.org/guidelines-for-paper-submission/>.
5. El Salvador’s top surfer, Katherine Diaz, was struck and killed by lightning while training. She was on the water near her home in El Tunco, El Salvador, when she was struck. Bystanders tried to revive her before paramedics arrived. She could not be revived and died on-scene. The Salvadoran Surf Federation noted “the sky was clear and it was an unforeseen storm that did not seem to carry much electrical intensity either.”

6. We are finished with the lightning safety brochure. We had 7500 brochures printed and Barb has already handed out 2500 of them. She has given them to places such as fire and police agencies, the U.S. Forest Service, libraries, sporting goods stores, and local chambers of commerce. I want to thank Shirley Terry and the Mile-High RETAC Save A Life Program, Ken Langford for the use of his photographs and Barb Stemple for all the work on the multiple versions and revisions and also for the distribution of the brochures. I also want to thank the graphic artist who worked with Shirley and tolerated multiple requests for revisions. Last, but not least, I want to thank the owner of the print shop, Charles McConnell, who donated 1000 of the 7500 brochures printed and provided a free upgrade to a water-resistant grade of card stock. Without all of you, this would not have been possible. Thank you! The brochure is posted on the LDC website under the safety tab.
7. While Barb was handing out brochures, a person asked her if it was safe to be sitting on a toilet with a thunderstorm in the area. Barb said “No” to that person. Ken Langford showed a CNN news clip about a homeowner who had a toilet that had been shattered by lightning. The clip is available here: <https://www.cnn.com/2019/08/06/us/lightning-strike-toilet-explosion-trnd/index.html>. Here is another link: <https://mail.google.com/mail/u/0/#inbox/FMfcgxwLtQRJSKtdwqvqRRBlsvBZCCxF?projector=1>
8. Our medical consultant, Dr. Phil Yarnell, noted generically, a case of a patient with an electrical shock injury during surgery. The patient was connected to a monitoring device and a bovie electrocautery. The patient suffered burns and some local acute bleeding and has significant chronic post electric shock syndrome. Mary Ann Cooper and Chris Adams have described the syndrome in a recent publication to heighten public awareness. Phil asked if there were any other cases of operating room electrical injuries. Ken Langford performed an Internet search for electrical injuries in the operating room and found multiple links as listed in the Lightning Links section.

We discussed at length one of the articles Ken found. A person had been shocked while connected to two different machines. The patient fully recovered. The cause of the problem was found in two places: the wiring in the electrical outlet and the wiring of one of the machines. The outlet wiring was incorrect relative to other electrical outlets, which meant the outlet was not properly grounded. On the machine, the plug was also incorrectly wired, which caused it to not be properly grounded. Ken suggested the equipment should be tested with a continuity checker to verify the plug is correctly wired before using it. He also said an electrical outlet tester would have shown if the electrical socket was properly wired and grounded.

9. Ken Langford presented an article on fulgarites. A couple found some gray, glass-like rocks in their back yard and did not know what they were. A local geologist determined it was a fulgarite. The fulgarite was analyzed for its chemical content and was found to contain a mineral called schreibersite. This mineral is found in meteorites and may be an important prebiotic mineral since it contains reactive phosphorus in a form that biological organisms can use. Most scientists think schreibersite came only from meteorites, but some think lightning strikes to the ground during earth’s early history may been an important source of the mineral.

10. LDC welcomes your medical questions. Please send them via e-mail to Steve Clark at [sclarktoto@gmail.com](mailto: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.
11. Questions, comments, error notifications, and critiques of these minutes are welcome. Please forward those to Steve Clark. Please keep your communications professional and respectful. Communications will be forwarded to the appropriate author(s) of the minutes and addressed accordingly.
12. 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.
13. Next meeting: Zoom meeting. Friday, May 14, 2021, from 11:45 AM to 1:00 PM MDT.

Respectfully Submitted,  
Steven E. Clark, Consulting Meteorologist  
Office: 303-364-3622 / Cell: 720-205-5209  
E-mail: [sclarktoto@gmail.com](mailto:sclarktoto@gmail.com)

## 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.**

Bass, G., 2021: Travelers from Athens, Texas, Unharmed After Lightning Strikes Pickup. *WCSC-TV*. March 19 and 20, 2021. Link: <https://www.live5news.com/2021/03/20/travelers-athens-texas-unharmed-after-lightning-strikes-pickup/>

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Roscher, L., 2021: El Salvador's Top Surfer Dies at 22 After Being Struck by Lightning. *Yahoo! Sports*. March 21, 2021. Link: <https://www.aol.com/sports/el-salvadors-top-surfer-dies-140426428.html>

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Spears, C., 2021: Study Finds Coors Field Ranks 4<sup>th</sup> Most Lightning Prone MLB Stadium. *KCNC-TV*. April 1, 2021. Link: <https://denver.cbslocal.com/2021/04/01/coors-field-lightning-study-colorado-rockies/>

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Greenfieldboyce, N., 2021: How a Building Block of Life Got Created in a Flash. *CPR News*. March 16, 2021. Link: <https://www.npr.org/2021/03/16/977769884/how-a-building-block-of-life-got-created-in-a-flash>

The NPR audio interview corresponding to the CPR article is:  
<https://www.npr.org/2021/03/25/981180923/fulgurite-what-a-lightning-formed-rock-may-have-contributed-to-life-on-earth>

Hess, B., S. Piazzolo and J. Harvey, 2021: Lightning Strikes as a Major Contributor of Prebiotic Phosphorus Reduction on Early Earth. *Nature Communications*. March 16, 2021. Link: <https://www.nature.com/articles/s41467-021-21849-2.pdf>

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Kiefer, P., 2021: Lightning Strikes Could Double in the Arctic This Century, Setting the Tundra on Fire. *Popular Science*. April 6, 2021. Link: <https://www.popsci.com/story/environment/lightning-fires-in-arctic/>

Chen, Y., D. Romps, J. Seeley, S. Veraverbeke, W. Riley, Z. Mekonnen and J. Randerson, 2021: Future Increases in Arctic Lightning and Fire Risk for Permafrost Carbon (Abstract only). *Nature Climate Change*. April 5, 2021. Link: <https://www.nature.com/articles/s41558-021-01011-y>

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Below are multiple links which deal with the topic of electrical shock in a medical setting. These links were found by Ken Langford during our meeting. He searched for "Electrical Injuries in the Operating Room".

<https://pubmed.ncbi.nlm.nih.gov/4684516/>  
<https://accessanesthesiology.mhmedical.com/content.aspx?sectionid=51860185&bookid=871>  
[https://jamanetwork.com/journals/jama/article-abstract/348424](https://pdf.sciencedirectassets.com/318044/1-s2.0-S0007091217X64982/1-s2.0-S0007091217451476/main.pdf?X-Amz-Security-Token=IQoJb3JpZ2luX2VjECIaCXVzLWVhc3QtMSJGMEQCIEsg3QIG3bePP0uoWKJTPWzX%2Fsn2MvA%2FPLqhMrXmKflRAiBjktWNMTHOZYKecIVkdxRtJAQJzH1PEaCZ6H2tCFjkQSQ0Awh7EAMaD DA1OTAwMzU0Njg2NSIMbYcWfiCYdPhoAnR7KpEDWDUL2dJQX97z9srhPDiBFG9S7SS13bMJ acQsikzNLd9YTVTdHrz7sJ81N3hFV5hLIcU2tzCb297fS1%2FbDJf6Je56oX0DkOnu1gm8it3%2B3QJ QgXflYYyosATA2OrR9AhpPm%2BmBxsAA4p9rt%2FutEIDej2CAD4%2BfCEo1tgKCr0NQSajIdqaaArdBnJYvoLvLjZfBzhg3SknuZ%2BNswWXkwmMrBbdGFVaQzzNOJH4pbCIEh9ujrP8B%2BryWKPN2tPPXrH05OPCrPFaykNzy8gF90sEoIzcPgWivSdbJGrkoI5zvSWj4omVBwMdKPkR14C ignxjyRZ310G%2Be%2F30QJXG92zklhoFbiN18SprJlStfAGNIIZBxxma85UtDOSISQ6a%2BrGnXBevstaJ%2FWvzRUycMiQCM%2BJS5OwuLrDX5io34rCVJYwSpBwr11Onsp5QL%2FJMLYsxjD7dh4KwCo%2FskL2DDq4Pkjly6W5DAQ4j7IojDdgo6oBbILJB63k1y4Gq0NKxyr4DVoIamcuVLB0M0ZLg9dUp swm5vCgwY67AGmaJII4AYdMMdIQnLnDcjhY3uN7PKx6P4ioW8sHwdTLRw0r6gVI6XfepGd6dEm lkZeTDWT8a1Ja20ZOqfnBzx%2Bn6pSNENCXpuUWj199Kg%2BAxW8WAseclotM%2B%2B%2B4JPI1soe8cVOLxfqaxHM4wYbIpmX3gkv9ZgUWM9p0JjqBLtAfK7Dg7MDWZyVAfcLfnEMNR TyEuVW4O7rDDw103K5YDCyKGyG03dKIrcMEut8XtCeD%2B4iPljm1uj7o3EqVRUCaE8a%2Fb4B2aPE8yFxQhY%2F85FzA0q4cNjvKilWW6dcZ4iM4XOdtPS2dK3fH8EYg%3D%3D&X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Date=20210409T182132Z&X-Amz-SignedHeaders=host&X-Amz-Expires=300&X-Amz-Credential=ASIAQ3PHCVTY5UUZHQES%2F20210409%2Fus-east-1%2Fs3%2Faws4_request&X-Amz-Signature=e22ceac1b664a1d9ab10f2dfe4bd2044d4d9d979e1e4b958ce1f52908b57d70&hash=11d3a94e8d324e35c80ee2b5310f6b61a8a8ce452bcdeefe18fff638512e5fde&host=68042c943591013ac2b2430a89b270f6af2c76d8dfd086a07176afe7c76c2c61&pii=S0007091217451476&tid=spdf-dcb78f54-0d27-493c-a0ae-6ea10d757a10&sid=a88bbba1266dc64f991b9fa05f57a956cdb9gxrqa&type=client)