

LIGHTNING DATA CENTER MINUTES

May 13, 2022

ST. ANTHONY HOSPITAL

www.lightningdatacenter.org

Monthly Quote: “Graiae. Literally, “the old women.” Also, call *Phorcydes*. They first appear in Hesiod (*Theog.*) and are by him declared to be daughters of the sea-god, Phoreys, by his sister, Ceto, and sisters of the three Gorgons. They are beautiful, well-dressed, and white of hair from birth. In Eschylus (*Prom. Vinc.*) they are described as monsters, swan-shaped, and possessing in common but one eye and one tooth, which neither the sun nor the moon had ever shone upon, and which they borrowed from one another as occasion demanded. Some of the poets made them guardians of the Gorgons. Their names are: Pephredo, Enyo, and Dino. The Graiae have been thought to symbolize the clouds, the transferable eye and tooth representing the flash of the lightning and its rapid interchange from one cloud to another.”

Source: Arch Ophthalmol. 1998; 116(12): 1624. doi: 10.1001/archophth 116.12 1624

Members present: Clark, Swanson, Stemple, Langford, Terry, Crow, Yarnell, Wachtel and Coomer. Meeting began at 12:05 PM and ended at 1:15 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. Thanks to a donation from Dr. Michael Cherington, the LDC now has \$1182.00 in cash.
2. Earlier, we discussed a trip to Rocky Mountain National Park with Coleen Crow. She can get us passes. The best date ranges to do the hike are: June 23-29, July 18-22 and July 25-29. Coleen thinks it is best to head out from the trailhead by 9 or 10 AM, but no later. The hike will take about 2 hours round-trip: ~45 minutes uphill to the site where she was hit, ~30 minutes for “show and tell” and then a little less than 45 minutes back down to the trailhead, which is the Colorado River Trailhead located on the west side of the park. The trailhead is approximately 20 minutes from the Grand Lake side and about 40-45 minutes from the Estes Park side. From the dates given, what first and second date work best for you? ANY first and second date is fine. We need a second date so we have a “Plan B” in case the first date cannot be done for some reason. Please let me know via e-mail at sclarktoto@gmail.com.
3. Carl Swanson sent four “Lightning in the News” items. First, a man was close to being struck by lightning while shutting off the sprinkler outside his home. Ring security camera footage captured a flash of lightning near a neighbor’s house which appeared to have hit the ground, causing a cloud of dirt clods, dirt and dust to be thrown into the air. Second, a toilet blew up in an apartment in Oklahoma after a lightning strike, leaving it in several pieces. Authorities say the lightning hit a roof vent, then came downward through the toilet. The apartment was not rented or occupied at the time of the strike. Third was a short video on fulgarites. Fourth, a broadcast meteorologist did a short news story on positive lightning.

4. A Wisconsin couple was electrocuted while attempting to perform “fractal woodburning” using a disassembled microwave oven as a power supply. The house they were in had burned down. Authorities first thought the cause of the fire and their deaths were “suspicious”, but later ruled out foul play and determined the fire and fatalities were accidental. The couple was found dead in their garage where the fire had started. According to the American Woodburners Association, at least 33 people have died while attempting fractal burning since 2016.
5. Dr. Phil Yarnell presented a case of a boy hit by lightning. The mother said her son was outside stargazing and went into a shop with no doors and there was lightning all around. The parents awoke at about 1:30 AM due to loud noises outside. The next morning, the son remembered lightning all around. Nobody saw him get hit. He felt like he had died and he was dazed and confused. He did not know what year it was. He had a psychotic episode the next day where he had become delusional and started hallucinating, which led to a trip to the ER. He told the doctors he felt like he was struck indirectly by lightning. There were no physical complaints. The doctors did not check his brain. Phil is hoping to get more information. Ken asked if the floor was dirt or some other material and also what the shop walls were made of.
6. Phil also presented some questions to the group about an airline ramp worker that received an electrical shock. It had rained. He had rolled a ladder up next to the fuselage of an airplane, leaned against the airplane and opened the baggage compartment door. He reached inside for a toggle switch and that is when he was shocked by a blue arc through his hand. He was stunned but he had the presence of mind to step down the ladder, lay down on the tarmac and tell his coworkers that he needed help. He was taken to the hospital. The worker had no burns, but has post-electric shock syndrome and neuropsychological issues. Phil posed two questions for the group. Could a static charge build up in an airplane to cause arcing? Can a static charge cause damage to a person? There were thunderstorms 2-3 miles away and there was no lightning in the immediate area. We discussed at length whether or not a charge had built up on the skin of the plane or had originated from somewhere within the plane. Carl mentioned static electricity is what brought down the Hindenburg. Ken Langford said the ladder may have been insulated on the ends to protect the paint finish on the plane. Ken also said the power connection to the plane may have provided a source of electricity to the plane. Later, Ken stated there should not be a charge on the outside of the plane because if there was, the discharge would have happened at the time the skin of the plane was touched. He thinks the charge came from somewhere within the plane since the discharge occurred after reaching for the switch. Phil asked if an airplane fuselage is made of composite material, could that have helped accumulate a charge? Carl noted we had discussed lightning arresting issues for the Boeing 777 previously (See the November 1999 minutes). Carl mentioned the wings of airplanes have small wires that discharge static electricity from the airplane to the atmosphere. Ken found an article that noted the same thing. That article also noted the wires need to be properly bonded to the airplane, otherwise the tendency to discharge will be limited. On Phil’s second question, “Can a static charge cause damage to a person?”, we concluded the answer is “yes”. After all, lightning is a huge spark caused by static accumulation of opposite charges. The real question is at what magnitude does static electricity cause damage to humans?

7. The European Space Agency will be launching a new weather satellite, Meteosat Third Generation, toward the end of this year. The lightning imager has detectors that are sensitive enough to detect relatively weak lightning even during broad daylight. On board will be four optical heads, each with a detector array having a resolution of 1.2 million pixels. The sampling rate will be 1 millisecond, resulting in initial data flow rates of several gigabits per second. On-board processing and screening will reduce the data flow to ground stations to a rate of around 30 megabits per second, so that only meaningful data make it through.
8. After the meeting, Ken Langford sent news that a Toyota Prius being driven by a storm chaser was hit by lightning and would not start after the hit. The dealer had to replace the ECM (Engine Control Module) before any diagnosis could be performed. After that, three more ECUs (Engine Control Units) would need to be replaced. More diagnoses may need to be done once those are replaced.
9. LDC welcomes your medical 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 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.
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: St. Anthony Hospital. Friday, June 10, 2022, 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.

Galindo, S., 2022. Breakdown: Positive Lightning Strikes vs Negative: What's the Difference?. *WMC-TV*. April 26, 2022. Link: <https://www.actionnews5.com/2022/04/26/breakdown-positive-lightning-strikes-vs-negative-whats-difference/>

National Weather Service JetStream website: The Positive and Negative Side of Lightning.

Link: <https://www.weather.gov/jetstream/positive>

Sung, M., 2022: Couple Electrocuted After Attempting Viral Wood-Burning Art Technique. *NBC News via Aol News*. April 26, 2022. Link: <https://www.aol.com/news/couple-electrocuted-attempting-viral-wood-215614346.html>

European Space Agency, 2022., Weather Satellite Prepares for Lightning. *Phys.org*. April 20, 2022.

Link: <https://phys.org/news/2022-04-weather-satellite-lightning.html>

AMI Staff, 2022: Lightning Strike Causes Exploding Toilet. *River951.com*. May 5, 2022.

Link: <https://www.river951.com/lightning-strike-causes-exploding-toilet/>

Abad, D., 2022: Watch: Lightning Bolt Explodes Ground Near Florida Man. *Nexstar Media Wire*. May 9, 2022.

Link: <https://www.fox21news.com/news/watch-lightning-bolt-explodes-ground-near-florida-man/>

9News.com, 2022: This is the Insane Thing That Happens When Lightning Strikes Sand. *KUSA-TV*. May 9, 2022. Link: <https://www.9news.com/video/tech/science/amaze-lab/this-is-the-insane-thing-that-happens-when-lightning-strikes-sand/609-3996481f-7617-48cc-a1d2-571c321e6aa1>

YouTube Video: More Pi, 2022: Lightning Killed My Prius! *More Pi*. April 14, 2022.

Link: <https://www.youtube.com/watch?v=xZF6nqe2Uzo>