

LIGHTNING DATA CENTER MINUTES

September 13, 2019
ST. ANTHONY HOSPITAL WEST, LAKEWOOD, CO
www.lightningdatacenter.org

Quote of the Month: “What’s the use of being afraid of it? You can’t do anything to stop it, and if it’s going to hit you, why there’s the end of it. You can’t dodge it if you try and one place is just as good as another.” *Southern Live Stock Journal*, Starkville, MS, Nov. 24, 1887.

1. Members Present: Clark, Wachtel, Yarnell, Claus and Elder. Clark moderated. Meeting began at 11:55 AM and ended at 1:05 PM.
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 \$389.00 in cash holdings, due to a \$15.00 payment for renewal of our website domain name.
3. Carl Swanson sent us some medical information obtained via his First Responders Data Collection project. A man was struck by lightning while he and his family were at a cemetery. Family members reported hearing a loud crack and then the man fell to the ground. The man was unconscious and unresponsive following the strike, so CPR was given by a family member for approximately 10 minutes. By the time EMS arrived, he was awake with a pulse and was moaning in pain. He could respond to Yes/No questions. EMS found a pea-sized burn mark on his sternum and another burn mark on the dorsal side of his left foot. Further examination showed the strike traveled down through his left groin and continued through his left lateral leg to his foot. He was taken to the hospital and was diagnosed with the following: cardiac arrest, acute respiratory insufficiency, electrical burns, hypoxia, chest pain, elevated troponin, ischemic EKG changes, prolonged QT, pulmonary infiltrates, nausea and vomiting, transaminitis, increased CK, hyperglycemia, lactic acidosis, insomnia, back pain, and finally 2nd degree burns to his anterior trunk and bilateral lower extremities. Patient was released seven days later and scheduled for several follow up visits. When he was discharged, patient said pain was “shooting” and aggravated by movement. Job well done, Carl. Thank you.
4. Dr. Phil Yarnell discussed a new research tool, called the Brain Connectome, which maps circuits in the normal brain. It used to be when a patient reported a problem to their doctor that might involve the brain, physicians would look for a lesion in the brain and try to correlate the lesion to the malady being reported. The problem is, many neurologic and psychiatric symptoms correspond more closely to networks of connected regions. Now, the human connectome, which was constructed by the neuroimaging of thousands of healthy people, provides a roadmap of those connections. This process, known as lesion network mapping, may possibly reveal new treatment targets for patients with complex neuropsychiatric issues. See the link below for an article written by Dr. Michael Fox.

5. Phil had some comments about the Lightning Strike & Electric Shock Survivors International (LSESSI) group. LSESSI is a 501c non-profit organization which was started by Steve Marshburn 31 years ago and is headquartered in Jacksonville, North Carolina. They have approached Phil about becoming a board member and he has accepted. A man named Jim Segneri will take the lead in running the organization from Steve Marshburn. Next year's annual meeting will be held in May at the Country Cascade Resort in Pigeon Forge. The group is considering holding future annual meetings in other places around the country and holding regional meetings. LSESSI is seeking sponsorship for its meetings and is also in the process of fund raising. Monies raised will go to help survivors attend meetings. Phil thinks we should write and consider being affiliated due to common interests and goals.
6. In last month's minutes, mention was made of a couple out hiking when their hair stood on end, indicating an imminent lightning strike. A local broadcast meteorologist advised people in such a situation to "...get down on all fours..." to reduce your chances of being hit. Following the release of those minutes, Mary Ann Cooper said she had given a presentation on "Backcountry Lightning Risk Reduction – Lightning Crouch Versus Standing With Feet Together" at the 5th International Lightning Safety Conference in March 2014. Meteorologist Bill Roeder performed numerical analyses for the risks associated with standing with feet together versus the lightning crouch in an open field and in a large, dense stand of trees. The analysis found that the average risk of being hit was 0.75% greater with the lightning crouch versus standing with your feet together. While the difference is small, the lightning crouch is harder to do, especially for prolonged periods of time. Additionally, the lightning crouch is harder to remember and is more likely to be done incorrectly. Thankfully, the LDC has not yet reached out to the broadcast meteorologist, but will do so with the information at hand. Our thanks to Mary Ann Cooper for bringing this to our attention.
7. The possibility exists that we will have some new lightning records. The August 22, 2019 edition of *National Geographic* discusses the work of Michael Peterson, a remote sensing scientist at Los Alamos National Laboratory. According to Peterson, some of the lightning flashes detected by the Geostationary Lightning Mappers on the new GOES 16 and 17 satellites are too complex due to the volume of data ingested. When this happens, the algorithm cuts the flash into smaller segments and those segments end up being flagged as degraded. Most researchers end up discarding and ignoring the degraded flashes. Peterson has developed an algorithm which reconnects the segments into a whole. From his work, there are two possible records for lightning. A flash over Brazil measured approximately 418 miles end-to-end and a 13.5-second flash was detected over the central U.S. These data have yet to be verified by the World Meteorological Organization. Over the southern U.S., a third major strike covered an area of approximately 44,400 square miles, which is about the size of Ohio. Thanks to Shirley Terry for this news.

8. We had a surprise visit from a lightning survivor. This fellow has always been fascinated by the weather and storms and loved to watch the sky. On a stormy day, he was standing on the 3rd floor balcony of his condominium looking at a dark cloud when he was hit. Lightning and thunder came at the same time. He said it seemed as if the parking lot was filled with filaments of lightning. Apparently, he had a brief loss of consciousness, as the next thing he knew, he was on the floor of the balcony. His head felt like a sinus infection, only worse. He had some cold shivers and was dizzy. He laid on the balcony for a few minutes. Earlier, he had heard if you are afraid of Alzheimer's, then you should try memory exercises. He had seen a 10-year old kid on TV reciting pi out to 50 digits. He figured if the kid can do it, so can he. While lying on the deck, he started reciting pi, but was having trouble pronouncing the numbers. He went inside and looked at himself in the mirror and saw that his lips were swollen. Later that day, he thought about seeing his cardiologist, but it was too late as his office was closed. He put a stethoscope to his heart and it seemed fine. He has had mental lapses from time to time. He is a fan of Formula 1 racing. After the strike, he was watching a race on TV. Every 20 seconds, his view of the race was interrupted by a dream. This happened for an hour or so. He felt a floating sensation and still does on occasion. He did not have any burns. After the strike, he felt like he had been hit by a truck. His current complaints are being unstable on his feet and an unsteady consciousness. He reports no residual pain and there is no apparent fatigue. Before the strike, he was sleeping and waking every two hours. He sleeps better post-strike. He is not fearful of going outside, but he is more wary of storms than he used to be. His mental sharpness varies from day to day. Sometimes he is sharp and sometimes he is foggy. Finally, none of his neighbors reported seeing the strike. They also did not report any electrical issues from the strike.
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, notification of errors, and critiques of these minutes are welcome. Please forward those to Steve Clark at: sclarktoto@gmail.com. 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: Friday, October 11, 2019, from 11:45 AM to 1:00 PM at St. Anthony Hospital, Conference Rooms E & F. Format: Roundtable.

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.

Garrison, R., 2019: Hiker Seriously Injured Following Lightning Strike in Rocky Mountain National Park. *KMGH-TV WFTS-TV*. August 17, 2019. Link: <https://www.thedenverchannel.com/news/local-news/hiker-seriously-injured-following-lightning-strike-in-rocky-mountain-national-park>

Cappucci, M., 2019: Lightning Missed a Man by Feet, and It Was All Caught on Camera. *The Washington Post*. August 16, 2019. Link: <https://www.washingtonpost.com/weather/2019/08/16/lightning-missed-man-by-feet-it-was-all-caught-camera/>

Shepherd, M., 2019: A Guide for Debunking Lightning Myths. *Forbes*. August 17, 2019. Link: <https://www.forbes.com/sites/marshallshepherd/2019/08/17/a-guide-for-debunking-lightning-myths/#1fc323b011ff>

Childs, J., 2019: Poland, Slovakia Lightning Kills At Least 5, Injures 150. *The Weather Channel*. August 23, 2019. Link: <https://weather.com/news/news/2019-08-23-deadly-poland-slovakia-lightning-strikes>

Tolliver, L., 2019: Lightning Pattern Left on North Carolina Golf Course After Storm. *The Virginian-Pilot*. August 22, 2019. Link: <https://www.pilotonline.com/weather/vp-nw-lightning-strike-20190822-g574vzcavzcjpkxzwh747xvm7u-story.html>

CBS 17 Digital Desk, 2019: Man Struck by Lightning While Swimming on Outer Banks. *CBS 17.com*. August 23, 2019. Link: <https://www.cbs17.com/news/north-carolina-news/man-struck-by-lightning-while-swimming-at-outer-banks/>

Associated Press, 2019: Lightning Strike at Tour Championship Causes 6 Injuries. *KDVR-TV*. August 24, 2019. Link: <https://kdvr.com/2019/08/24/lightning-strike-at-tour-championship-causes-6-injuries/>

YouTube Video: 06/07.08.2019 – Sprite Over Northern Italy. Link: <https://www.youtube.com/watch?v=oc6e8VZhb-I>

Wei-Haas, M., 2019: Record-Breaking Lightning As Long As Kansas Discovered. *National Geographic*. August 22, 2019. Link: https://www.nationalgeographic.com/science/2019/08/record-breaking-lightning-as-long-as-kansas-spotted/?cmpid=org=ngp::mc=crm-email::src=ngp::cmp=editorial::add=Science_20190828&rid=0F4EC7792435A17EC73A301685738655

Fierro, N., 2019: Centennial Home Damaged, Family Displaced Following Lightning Strike. *KDVR-TV*. September 7, 2019. Link: <https://kdvr.com/2019/09/07/centennial-home-damaged-family-displaced-following-lightning-strike/>

Roeder, W., 2014: Backcountry Lightning Risk Reduction – Lightning Crouch Versus Standing with Feet Together. 23rd International Lightning Detection Conference and 5th International Lightning Meteorology Conference, presented by Vaisala in Tucson, Arizona. Link: <https://my.vaisala.net/Vaisala%20Documents/Scientific%20papers/2014%20ILDC%20ILMC/ILMC-Friday/Roeder-Backcountry%20Risk%20Reduction%20Crouch%20vs%20Standing-2014-ILDC-ILMC.pdf>

Brode, G., 2019: Aurora Dispatcher Getting Help from Community After Home Is Struck by Lightning. *KMGH-TV*. September 11, 2019. Link: <https://www.thedenverchannel.com/news/contact7/aurora-dispatcher-getting-help-from-community-after-home-is-struck-by-lightning>

Kruegel, E. and Web Staff, 2019: Family Home in Strasburg Destroyed by Lightning. *KDVR-TV*. September 12, 2019. Link: <https://kdvr.com/2019/09/12/family-home-in-strasburg-destroyed-by-lightning/>

Fox, M., 2018: Mapping Symptoms to Brain Networks with the Human Connectome. *New England Journal of Medicine*, 379(23):2237-2245. December 2018. Link: https://www.researchgate.net/publication/329451781_Mapping_Symptoms_to_Brain_Networks_with_the_Human_Connectome