

LIGHTNING DATA CENTER MINUTES

December 14, 2018
ST. ANTHONY HOSPITAL WEST, LAKEWOOD, CO
www.lightningdatacenter.org

Quote of the Month: “We cannot build statues to honor great scientists the way they do for politicians or warriors. But we can do better by preserving the products of their intellect.” - Abdul Mousa

1. **Happy Holidays To All!**
2. Members Present: Clark, Yarnell, Wells, Langford, Stewart, Wachtel (Howard and Clara) and Elder. Meeting began at 11:55 AM and ended at 1:10 PM. Clark moderated.
3. 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 \$90.00, enough to pay for website hosting for the first half of 2019.
4. Effective January 2019, food will no longer be provided at the meetings due to a hospital-wide budget shortfall. Beverages will continue to be offered. Starting with the January meeting, if you want to eat at the meeting, you will need to bring your own food.
5. The International Conference on Lightning and Static Electricity will be held in Wichita, Kansas on September 10-13, 2019. A call for papers is now open. Abstracts with 400 words or fewer are being accepted and are due no later than February 22, 2019. For more information, please visit their website at www.icolse.com.
6. Dr. Tibor Horváth, Professor Emeritus with the Department of Electric Power Engineering at Budapest University of Technology and Economics, passed away on November 16, 2018 at the age of 91. Among his many accomplishments, he created the rolling sphere method and several theories of lightning protection. He also designed two high-voltage test laboratories.

In 2012, Abdul Mousa, with lightningprotection@yahoogroups.com, proposed to compile all of Dr. Horváth’s works into a single e-book to be placed on the ICLP website. The proposal was well-received, but the work has yet to be done. Anyone who can contribute materials or labor is encouraged to reach Mr. Mousa directly at this e-mail address: abdul_mousa@hotmail.com. Note the underscore between Abdul and Mousa.

7. The LDC will participate in the EMS Safety Summit on March 27-29, 2019 at the Embassy Suites in downtown Denver, Colorado. Featured speakers will be Steve Clark, Carl Swanson, Larry Moore, Sheryl Olson, Barb Stemple and possibly Broadcast Meteorologist Dave Aguilara. More specific information will be released as it becomes available.

8. Steve Clark presented a paper given to us from Professor Derek Elsom in the UK, which discusses lightning strikes in Northern Ireland. He and his colleagues found lightning struck a total of 9 people between 1987 and 2016. Of the nine struck, 8 survived and 1 was killed. They also discussed 3 cases of lightning injury. In one case, a healthy man was struck on the neck, causing cardiorespiratory arrest. Basic life support was performed by members of the public, followed by advanced CPR from paramedics. Spontaneous return of circulation was reported 50 minutes after the incident. The authors concluded extended periods of CPR most likely saved the life of this man. Lightning strikes with relative rarity in Northern Ireland, Scotland and Wales, with 5 to 9 days where thunder is heard, on average. In contrast, southern and eastern portions of the UK are struck with greater frequency, with 15 to 19 days per year where thunder is heard, on average. This is generally corroborated by flash density, with less than 0.25 flashes per sq. km in Northern Ireland, versus 1.0 flashes per sq km in parts of England.
9. Greg Stewart presented some news items.

In mid-October 2018, lightning struck near some missile sites in the Gaza Strip, causing an inadvertent launch of two missiles into Israel. The missiles were launched at approximately 3:30 AM. Maps from the Israel Total Lightning Network showed five strikes in the Gaza area between 3:10 AM and 3:20 AM. Four of the strikes hit at sea and one hit within the Gaza strip. Experts said the strike could be dozens of meters away from a missile launcher and still cause a missile to fire since the electronic launch systems used by the Hamas lack sophisticated safety precautions. The Hamas reached out to Israel and advised the weather caused the missiles to be launched.

In August 2018, a house fire in Littleton, Colorado was caused by lightning. Greg briefly mentioned an article on the fire from a firefighter's perspective. Here is the link to the article with multiple photos: <https://5280fire.com/2018-incidents/littleton-lightning-strike/>

A 2018 lightning strike on a drilling rig in Serbia destroyed electrical equipment on the top of a drilling mast. Two electric/hydraulic transmitters were also destroyed. As the storm approached, the crew on duty turned off the rig and auxiliary equipment and took shelter in a small metal trailer and a car. Later, when the 18:50 night shift arrived, they were told to remain in their vehicles. The damage became apparent on the following morning. The crew and their supervisors were congratulated for following procedures and preventing injuries or fatalities.

Greg also provided a brief update on the condition of a woman struck at an outdoor music event, whose case we had briefly discussed during the August meeting. She had been struck at approximately 12:30 AM. Approximately three weeks following the strike, she still had scars all over her body and could not control part of her face. She was mostly deaf and had to learn how to walk again. She was physical and speech therapy four times a week and was relying on her family for assistance.

10. A paper was written by Dr. Mary Ann Cooper, Dr. Chris Andrews and Andrew D. Reisner, PsyD, which proposes the inclusion of neuropsychological sequelae of lightning and electrical injuries into the DSM manuals. For both types of injury, patients end up with diagnoses that are more often than not incomplete or incorrect, which means treatment is often compromised and patients are often unable to seek compensation for their injuries. The paper was written using data only from electric shock survivors. Lightning strike survivor data was not included due to the relative paucity of lightning injury cases versus electrical injury cases. The authors note more data for lightning injury is needed. More specifically, the authors say they need to know what percentage of those struck by lightning develop sequelae deemed to be serious or severe. Steve Clark will reach out to the authors to see if the LDC might be able help in data collection.
11. In the October 2018 minutes, mention was made of a grant awarded to the African Centres for Lightning and Electromagnetics to protect schools in Africa against lightning. Phil presented an article from ACLENet, which describes their efforts. Per the article, ACLENet needs volunteers and donations to continue this work. For information on how you can help, visit ACLENet.org and click on the “How You Can Help” tab. Greg Stewart said they should also include churches.
12. Phil presented some lightning cases. Here follow my incomplete notes.

Case 1: A man was struck at a car show over two decades ago. A ground charge knocked him out and he laid on the ground for 20 minutes. There was tachycardia with no burns or apparent injury and he was unclear about what had happened. A few years later, there was back pain. Later, he had 3 spine surgeries and 15 orthopedic surgeries. He had atypical tremors and was later diagnosed with PTSD and had to leave his profession. He had extreme neuropathy in one foot. Marijuana was found to be helpful on many fronts.

Case 2: A ground crew member was shocked while grounding aircraft. The crew member says the shock may have been from the aircraft; however, others say lightning may have been the cause. Weather reports suggest lightning was near the incident site, but not at the same time or place where the shock took place.

Case 3: A man suffered cognitive and mood disorders following a lightning strike. He has a history of anxiety, concentration difficulty, fearful thoughts, feelings of vulnerability and is often restless. He has trouble falling asleep. The family also has a history of anxiety and depression.

13. Phil presented a question that came to him from a friend: You are skiing on a mountain and lightning is nearby and a shelter is not nearby. You need to seek safety. Which of the following would you do? 1 – Ski down the hill. 2 – Ski underneath the wires of a chairlift. 3 – Get into a grove of trees. Members discussed the pros and cons of all three. Some members said a large stand of trees is best, being sure to not be under the tallest tree and not be touching any tree. Howard Wachtel advised against getting into a grove of trees – especially if you are skiing in a panicked mode, as you could slam into a tree and be killed. Steve Clark added you could fall into a hole in the snow among the trees. Ken Langford suggested skiing underneath the wires of a chairlift between the riblets (lift towers), thinking the wires would effectively serve as a catenary cable to take a strike. Phil Yarnell expressed mistrust of that idea since lightning doesn't always strike the cable and also due to the possibility of side flash.

14. Howard Wachtel asked how many people have been struck while skiing. Ken Langford found one instance of a skier hit and killed by lightning. Witnesses said they heard thunder thirty seconds before the skier got off the lift and that snow pellets were falling at the time. Greg Stewart had an article that presented a case of two construction workers struck while working in a snowstorm in Utah. Their situation was made worse as they were standing on steel girders at the second-floor level, which increased their vulnerability. The two workers were critically injured and taken to the hospital.
15. The 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 emergency services provider.
16. 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.
17. 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.
18. Next meeting: Friday, January 11, 2019, from 11:45 AM to 1:00 PM at St. Anthony Hospital West. Room: Conference Rooms E & F. Meeting Format: TBA.

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.

Sleiwah, A., J. Baker, C. Gowers, D.M. Elsom and A. Rashad, 2018: Lightning Injuries in Northern Ireland. *Ulster Medical Journal*, 87 (3), pp. 168-172.

TOI Staff and J.A. Gross, 2018: Ministers Believe Lightning Strike At Fault in Gaza Rocket That Hit Beersheba. *The Times of Israel*, October 23, 2018. Link: <https://www.timesofisrael.com/ministers-believe-lightning-strike-at-fault-in-gaza-rocket-that-hit-beersheba/>

South Metro Fire and Others, 2018: Recent Incidents – Littleton Lightning Strike. *5280Fire.com*, August 14, 2018. Link: <https://5280fire.com/2018-incidents/littleton-lightning-strike/>

Dunn, M., 2018: Safety Share – Lightning Strike on the Drill Rig – Serbia – 2018. *www.scribd.com*, Date unknown. Link: <https://www.scribd.com/presentation/391424469/Safety-Share-Lightning-Strike-on-the-Drill-Rig-Serbia-2018>

Andrews, C.J., A.D. Reisner and M.A. Cooper, 2017: Post Electrical or Lightning Injury Syndrome: A Proposal for an American Psychiatric Association's Diagnostic and Statistical Manual Formulation with Implications for Treatment. *Neural Regeneration Research*, September 2017, Volume 12, Issue 9. Link: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5649452/>

Noble, M., 2018: 'Unusual' Lightning Strike in Snowstorm Shocked and Injured Two Utah Construction Workers, Company Says. *The Salt Lake Tribune*, April 18, 2018. Link: <https://www.sltrib.com/news/2018/04/18/unusual-lightning-strike-in-snowstorm-shocked-and-injured-two-utah-construction-workers-company-says/>

Berger, A., 1998: Vital Signs: Safety; When Lightning Strikes on the Ski Slopes. *The New York Times*. December 8, 1998. Link: <https://www.nytimes.com/1998/12/08/health/vital-signs-safety-when-lightning-strikes-on-the-ski-slopes.html>

Reinwald, C., 2018: Defying the Odds: Woman Struck by Lightning at Country Thunder Walking, Talking. *WISN.com*. September 13, 2018. Link: <https://www.wisn.com/article/walking-miracle-woman-struck-by-lightning-at-country-thunder-alive-talking/23122754>