

LIGHTNING DATA CENTER MINUTES

October 11, 2019
ST. ANTHONY HOSPITAL WEST, LAKEWOOD, CO
www.lightningdatacenter.org

Quote of the Month: “A flash of Tennessee lightning struck a Baptist church and knocked down 100 persons at a stroke recently. Tennessee lightning seems to be even worse than Jersey lightning.” Source: *Wood County Reporter*, August 4, 1887. Link: <https://chroniclingamerica.loc.gov/lccn/sn85033078/1887-08-04/ed-1/seq-2/#date1=1789&index=11&rows=20&words=lightning+Tennessee&searchType=basic&sequence=0&state=&date2=1963&proxtext=lightning+tennessee&y=0&x=0&dateFilterType=yearRange&page=1>

1. Members Present: Clark, Wachtel, Yarnell, Stemple, Langford, Swanson via Skype and a lightning survivor. Clark moderated. Meeting began at 11:45 AM and ended at 1:00 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. From the September 2019 edition of *The African Flash*: Lightning protection designs for two additional schools are nearly complete. Materials will be ordered and the installations are expected to be done by Christmas. After the installations are done, seminars on lightning safety and training will be given at the schools.
4. Our ball lightning colleague in Russia, Dr. Mikhail Shmatov, co-authored a paper with Karl D. Stephan of Texas State University. The paper discusses advances in ball lightning research since approximately the year 2000. Some of the more important findings follow. Ball lightning research has made significant progress since the year 2000. Fluorescence caused by ball lightning has been quantified. A ball lightning event has been captured on 3 simultaneous video recordings. Several new plasma-based theories have been proposed.
5. Barb Stemple reported she might have some funding for a lightning flyer through the Lions Club.

Barb also told us Bass Pro Shops has offered to sponsor a meeting in Denver, according to board members of the LSESSI. Steve Clark will approach LSESSI about forming a relationship with them and about holding a regional or a national meeting in the Denver area. The idea of sponsorship will be discussed then.

6. In the August 2019 minutes, mention was made of LDC member Steve Hodanish and two co-authors writing an updated paper on Colorado Lightning Climatology. The paper has been formally published and the link to it is listed below.

7. Carl Swanson reported for his First Responder Data Collection Project, in Colorado, a total of 15 people have been hit by lightning in 2019. Of those, there were 14 injuries and 1 fatality. Of the 14 injuries, 8 did not seek any additional medical attention, other than that provided by first responders. Carl is waiting for additional data from one first responder. All other agencies have reported.

Carl also asked if he could work with the Memphis Fire Department in an effort to expand his project into Tennessee and perhaps nationally from there. Ken Langford and Steve Clark agreed and told him to proceed.

8. Dr. Phil Yarnell is interested in examining the relationship of lightning and electric shock survivors to PTSD. He presented a case of a man who was an industrial manager. He received an electric shock of 20,000 volts. For roughly 3.5 to 4 years, he suffered from chronic pain. He has had difficulty using his arm and has pain and spasms when he uses it. He suffers from typical electric shock survivors symptoms. Such symptoms include but are not limited to: inability to initiate, spatial issues, short-term memory issues, problems with interpersonal relationships, withdrawal from others, difficulty with marital relations and poor judgment. Many spouses of survivors say their spouse is not the same person they married. Some survivors are not taking their prescribed medications for sleep and/or pain or they may be self-medicating with alcohol. Phil wants to know how common this is among long-term survivors of electric shock and lightning strike. Phil noted many electric shock survivors lack planning skills and cognitive skills. Some survivors lose their jobs, leading to a loss of self image. Phil said from the literature, depression increases after these events. Phil also said a survivor cannot get disability from being shocked or struck by lightning. There is no medical code for the disability of being shocked.

Barb Stemple said she has some of these qualities: Not being the same person which depresses her, not anticipating consequences, poor judgment and she has a harder time paying attention. She also says she loses control after a close lightning strike. Ken thought this could be a flashback or a phobia. Phil said she could be experiencing feelings of hyper-alertness, impending doom or hyper-vigilance. Barb also said not being understood, not being able to function, and a lack of empathy from others makes you feel isolated.

Phil says he wants a list of what defines PTSD so he can cross-reference it to survivors. Phil is interested in long-term issues such as suicide, drugs, alcohol, injuries and poor judgment and he wants to know how many lightning and electric shock survivors are dealing with these issues.

Carl Swanson asked what factors lead to diagnosis of PTSD. Phil said the burden on the VA is how to qualify a veteran as PTSD. Carl also asked if Phil was trying to find out how many lightning and electric shock survivors have symptoms of PTSD. Phil said yes.

Howard Wachtel asked what the ratio of PTSD is for lightning injuries versus electric shock. Phil did not know, but he said there are more electric shock survivors than lightning survivors.

Phil said medication and counseling, the most common forms of treatment, provide limited benefit to survivors and have not been all that successful. In that vein, Phil said the opioid crisis in our country started from chronic pain. Opioids are effective for treatment of acute pain, but for chronic pain, they are not as effective and can lead to addiction. Howard thought some people might have been depressed already.

We briefly discussed other potential methods of treatment. Phil said Transmagnetic Stimulation (TMS) over 30 sessions has been advocated for chronic severe depression. Howard said the TMS is simply an electric pulse generator with a coil. The coil produces a pulsed magnetic field which induces a current in the brain. Phil also mentioned a Transcutaneous Electrical Nerve Stimulation (TENS) unit is a device used to stimulate another part of the body so the brain is tricked into looking elsewhere for the stimulus, rather than the source of pain.

Phil said successful survivors are able to mobilize internal strengths and are capable of finding relief in deep faith. The most successful survivors are able to return to work. One individual dealing with chronic pain found the only thing to help chronic pain is faith, self-determination, something from the inside and not outside treatment. Phil said we need to reorganize thinking to heal chronic pain. Ken said a key part of healing is acceptance of the situation.

9. In an effort to help Phil get the data he wants, several suggestions were offered.

One effort to acquire that kind of data was reported in the December 2018 LDC Minutes. Dr. Mary Ann Cooper, Dr. Chris Andrews and Andrew D. Reisner, PsyD, are trying to get a certified code into the DSM manuals for the neuropsychological sequelae of lightning and electric shock. This is an effort to address not the physical aspects of injury, but rather the neuropsychological effects, which are seldom outwardly seen. The kind of data Phil is seeking is being used in that effort. I refer the reader to the December 2018 minutes for further information.

Barb asked if LSESSI could send questionnaires to survivors. Phil has said they have already collected that information and that Mary Ann Cooper has polled the members. Ken recommended asking Mary Ann for that data.

Carl said he would work on the idea of getting funding to research statistics in Federal Government repositories.

Ken recommended sampling the largest broad group with a "How are you doing?" type of conversation.

Howard recommended speaking with Anne Wagner at the University of Colorado's Burn Center as a possible source of patients to poll.

Ken thinks we should collaborate with a university to find a PhD candidate who could help with the project.

Phil has asked Dr. Rossi to consider this issue.

10. As these minutes go to press, Steve Clark just learned of a lightning strike in Texas. Video captured a man being hit by lightning and falling down on his face. Still images showed his left eye was completely encircled by blackness. His chest had a large burn mark on it and if any ferning had occurred, it was hard to see. One of his shoes had a hole in it. The video was captured by a security camera owned by a veterinary clinic and fortunately someone was looking at the monitor at the time. Personnel from the clinic ran out to give help. This guy is fortunate to have survived because normally the clinic would have been closed at the time of the strike. The link to the video is given below.
11. 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.
12. 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.
13. 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.
14. Next meeting: Friday, November 8, 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.

Hodanish, S. J., B. J. Vogt, and P. Wolyn, 2019: [Colorado lightning climatology](https://www.weather.gov/media/pub/pdf/Lightning/PDFs/2019-JOM4_Colorado_lightning_climo.pdf). *J. Operational Meteor.*, 7 (4), 45-60. Link: https://www.weather.gov/media/pub/pdf/Lightning/PDFs/2019-JOM4_Colorado_lightning_climo.pdf

Kornei, K., 2019: The Most Powerful Lightning Bolts Strike in Unexpected Places. *The New York Times*. September 17, 2019. Link: <https://www.nytimes.com/2019/09/17/science/lightning-superbolts.html?searchResultPosition=1>

Holzworth, R.H., M.P. McCarthy, J.B. Brundell, A.R. Jacobson and C.J. Rodger, 2019: Global Distribution of Superbolts. *JGR Atmospheres*. September 9, 2019. Link (Abstract only): <https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2019JD030975>

Beckford, A.E., 2019: Pair of Youth Soccer Players Struck by Lightning During Game. *ABC News via Storyful*. September 18, 2019. Link: <https://abcnews.go.com/WNT/video/pair-youth-soccer-players-struck-lightning-game-65704459>

The Siberian Times reporter, 2019: Woman Survives Spectacular Double Lightning Strike on Her Toyota. *The Siberian Times*. September 16, 2019. Link: <https://siberiantimes.com/other/others/news/woman-survives-spectacular-double-lighting-strike-on-her-toyota/>

CNN Wire, 2019: Kansas Man Running 50K Race Dies After Being Struck by Lightning Near Finish Line. *KDVR-TV*. September 30, 2019. Link: <https://kdvr.com/2019/09/30/man-running-50k-race-dies-after-being-struck-by-lightning-near-finish-line/>

Scripps National, 2019: Runner Struck, Killed by Lightning While Nearing Finish Line of 50K Race. *KMGH-TV*. September 30, 2019. Link: <https://www.thedenverchannel.com/news/national/runner-struck-killed-by-lightning-while-nearing-finish-line-of-50k-race>

Unknown Author, 2019: Child Fatally Struck by Lightning in Bath County. *The Recorder* (Article Fragment). September 12, 2019. Link: <https://www.therecorderonline.com/articles/child-fatally-struck-by-lightning-in-bath-county/>

Shmatov, M.L. and K.D. Stephan, 2019: Advances in Ball Lightning Research. *Journal of Atmospheric and Solar-Terrestrial Physics* 195 (2019) 105115. Link: <https://reader.elsevier.com/reader/sd/pii/S1364682619303840?token=3EE161F51B902FAF6E9A76DAF2689FFA31A621F8367146D72625B7E55BC718A3B54F17B7948C61E4FA956A851644FBC8>

Tribune Media Wire, 2019: Lightning Strike Causes Man's Chimney to Explode: 'My House Is Destroyed': VIDEO. *WTVR-TV*. September 3 & 4, 2019. Link: <https://wtvr.com/2019/09/03/lightning-strike-causes-mans-chimney-to-explode-my-house-is-destroyed/>

Pialet, T., 2019: Man Injured by Lightning in RMNP in "Fair Condition". *Estes Park Trail Gazette*. August 20, 2019. Link: <https://www.eptrail.com/2019/08/20/man-injured-by-lightning-in-rmnp-in-fair-condition/>

Okolie, S., 2019: Man Hit by Lightning in Spring Collapses Instantly: VIDEO. *KTRK-TV*. October 4, 2019. Link: <https://abc13.com/weather/man-hit-by-lightning-in-spring-collapses-instantly-video/5592728/>