

LIGHTNING DATA CENTER MINUTES

August 9, 2019
ST. ANTHONY HOSPITAL WEST, LAKEWOOD, CO
www.lightningdatacenter.org

Quote of the Month: “The fear of being struck by lightning is both a very real and a very sensible one. But lightning can be avoided like all other evils. It will strike in certain places and it will not strike in other places. There are reasons for its behavior in both cases, for nature never operates by chance.”
Arizona Republican. November 10, 1918.

1. Members Present: Clark, Langford, Wachtel, Stemple, Langford, Swanson, Gift and Terry. Meeting began at 11:50 AM and ended at 1:00 PM. Clark moderated.
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 \$404.00 in cash holdings, thanks to contributions from Dr. Cherington (\$50) and Whitey Sunderland (\$200). Your monetary support is very much appreciated. Thank you to both of you.
3. Carl Carl Swanson reported on three items.

First, the First Responders Data Collection project shows 14 people have been hit by lightning this year in Colorado. Of those, 1 was killed and 13 others were either injured or felt something. Carl is still waiting for more specific data from the agencies involved.

Second, Carl is moving to Clarksville, Tennessee. In Clarksville, there is a subdivision on top of a hill, which has 20 houses. Over the three weeks prior to this meeting, 7 of those homes have been struck, with multiple reports of damage to electrical items in the homes. Some of the residents report being shocked while inside their homes. Some of the residents are considering a lawsuit against the builder of the subdivision, saying the area is lightning-prone. A large number of electric garage door openers have been compromised. A local firefighter said the laser in one of the door openers could have propagated the lightning current to other door openers in the subdivision. Ken Langford asked about power lines in the area, thinking that was a possible mechanism for damage to electrical devices in other homes. Howard Wachtel suggested the current could have traveled through the ground to the other residences. Carl also showed us a photo of some large rocks (Fig. 1) which appeared to be granite, which were dug out of the ground where the earth was being leveled for foundations. According to witnesses, the rocks looked like tree roots made of glass. Howard Wachtel examined the photo and agreed part of it did appear to be glassy. Carl speculated the rocks were in a lightning-prone area that was repeatedly struck, causing the appearance. Topo maps of the area show there was a hill in the area of the subdivision, which would be a local high spot, although it does not stand out relative to other hills in the area.



Fig 1

Third, Carl said metal roofs are becoming popular in that area of the country, since they last longer than conventional roofing. When a metal roof is installed on a house, they typically are not bonded or grounded. Instead, bonding and grounding are available at an extra cost. Ken Langford suggested Carl have the roof company say roofing and bonding are not normally provided, but is available at an extra cost, which would hopefully boost sales for the roofing contractors. Ken also suggested Carl might approach local media about the issue.

4. Barb Stemple shared a couple of items with us.

She told us of a man at the conference that had been hit three times by lightning. In the first instance, he was standing in the garage with the garage door open. In the second instance, he was in his bedroom with the bedroom window open only three inches. In the third instance, he was in his kitchen with the main kitchen door open and the screen door closed. He has lasting effects from the strikes. Barb said a fair number of the lightning survivors at the conference had been hit multiple times.

Barb reported two recent episodes of lightning which left her feeling traumatized. In the first episode, she was walking her dog and heard a crack of thunder before entering a restaurant. Her response was a panic attack putting her in bed for a day. In the second episode, she was watering some plants when she heard a low rumble. She looked out her window and saw a bright flash. From that, she was in bed for two days. Over the past two weeks, she has been dealing with this trauma, which has left her feeling very uncomfortable when electricity is in the air.

She also reports having joined a lightning group on Facebook, where survivors can share their stories. She is still working on a website where she can post places where help is available for survivors. At the conference, she brought up the idea of moving the conference to Denver. Bass Pro Shops has indicated they may sponsor a Denver meeting. Barb is still looking into that.

5. Shirley Terry is in the process of creating a lightning safety flyer to be handed out at various public places that would provide the most essential lightning safety pointers. She asked LDC if she can use pointers from our Lightning Safety Poster. Ken Langford will assist her with that.
6. Howard wanted to extend his compliments to Dr. Anne Wagner for last month's presentation. He really enjoyed the presentation.
7. Just before last month's meeting, a pair of hikers were feeling the buzz of electricity and their hair was standing on end. Photos are available via the links section below. A local broadcast meteorologist heard about this and said lightning was about to hit them and the best action in that situation would be to "... get down immediately, get on all fours." Members of the LDC were disheartened by this advice and the LDC will reach out to this meteorologist and offer education accordingly. The same article gives a correct description of how to adopt the lightning crouch.
8. Steve Clark presented a side-by-side comparison of lightning flashes as depicted by lightningmaps.org (Fig 2) with a radar image (Fig. 3). The images are approximately 2 minutes apart in time. The lightning strikes depicted are mostly in the area of the radar echo, with some older strikes to the southwest. The two images are shown below. Ken Langford stated the gray circles around the newer flashes are a portrayal of the propagation of the thunder. Barb noted it might be instructive to compare the lightningmaps data with the NLDN data for the three cases of people that were struck who told the LDC of their events some three years ago.
9. LDC member Steve Hodanish and two co-authors wrote an updated lightning climatology for Colorado. There were three broad findings from their study. First, the authors noted the Denver convergence/vorticity zone, locally known as the "Denver Cyclone", plays a strong role in the location of cloud-to-ground strokes from storms which form in the area of the circulation. The "Denver Cyclone" is a topographically-induced circulation of air which helps to initiate thunderstorms along the Colorado Front Range. Second, they found during the North America monsoon, there is an increase in cloud-to-ground lightning over the entire state, with a focus on the south-facing sides of the San Juan Mountains. Third, the highest concentration of cloud-to-ground lightning is in areas where moisture, lift and instability are maximized.

10. 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.
11. 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.
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: Friday, September 13, 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

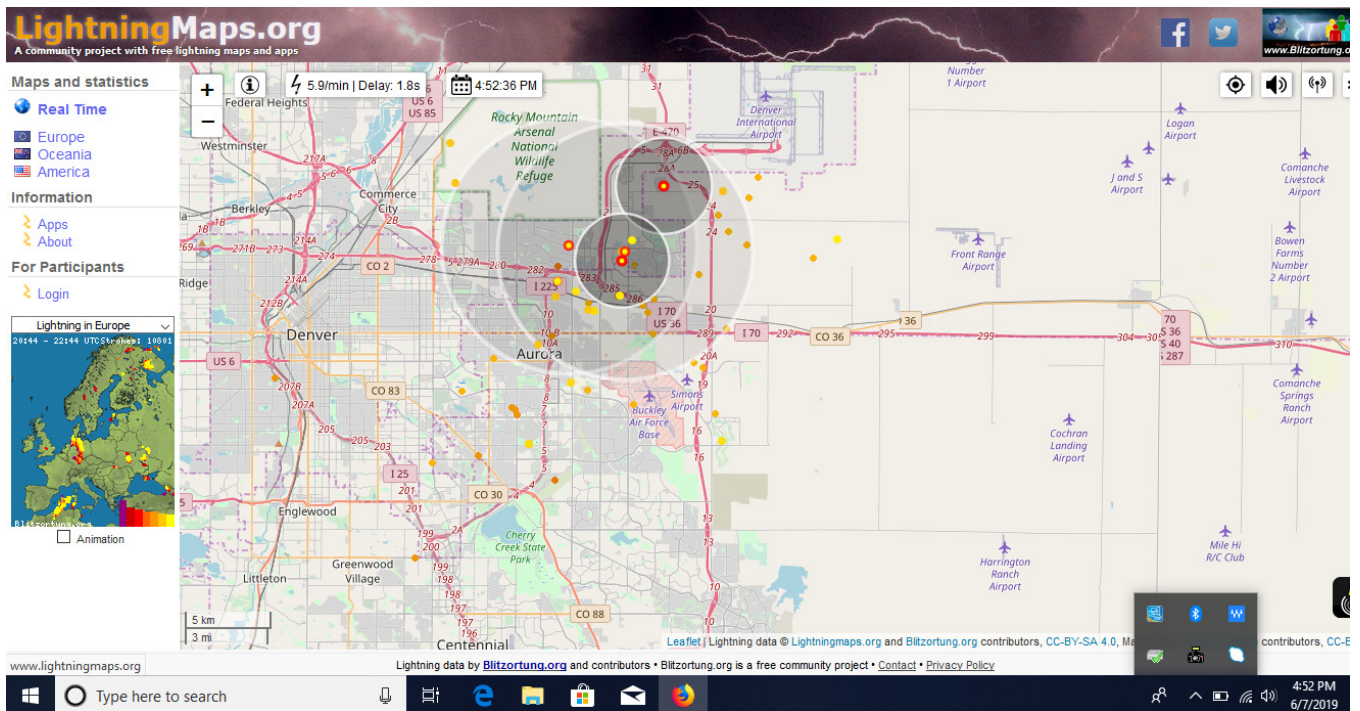


Fig. 2 – Lightningmaps.org from June 7, 2019 at 4:52 PM, showing lightning strikes to the southwest of Denver International Airport. Red dots are the more recent strikes; orange and yellow dots are older strikes.

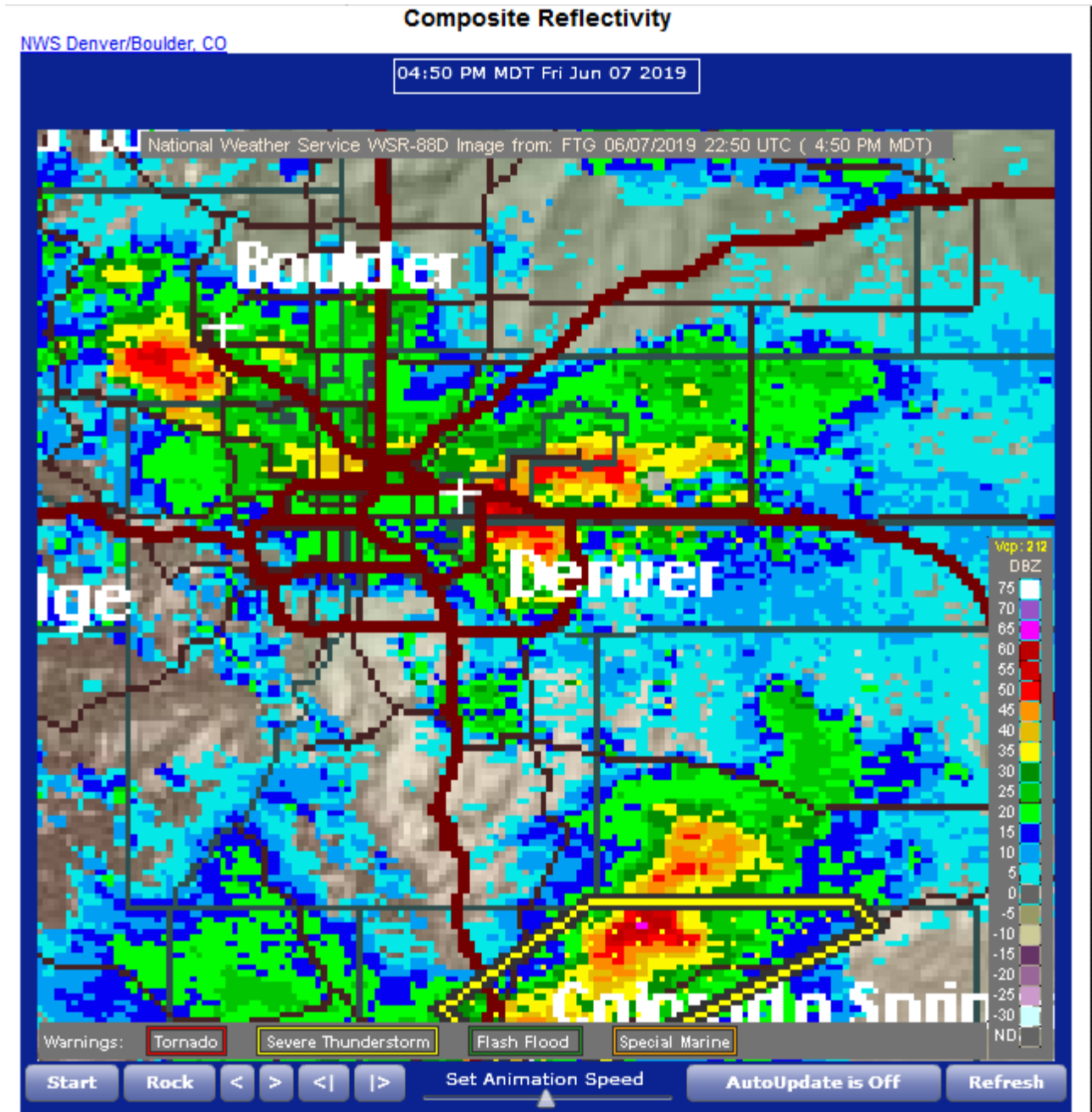


Fig. 3 – Denver National Weather Service WSR-88D radar image at 4:50 PM on June 7, 2019. Notice the red cell above the “D” in Denver. This cell is in the area where the red lightning strikes in Figure 2 were recorded.

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.

McCain, E., 2019: Lightning Strikes Clearwater Beach in Florida, Injuring At Least 8. *KMGH-TV c/o WFTS-TV*. July 21, 2019. Link: <https://www.thedenverchannel.com/news/national/lightning-strikes-clearwater-beach-in-florida-injuring-at-least-8>

Matics, D., 2019: Witness Describe “Complete Chaos” After Clearwater Beach Lightning Strike. *WTVT-TV*, July 22, 2019. Link: <http://www.fox13news.com/news/local-news/witnesses-describe-complete-chaos-after-clearwater-beach-lightning-strike>

Gruenauer, J., 2019: Two Coloradoans, the First to Respond to Florida Lightning Strike Victims. *KMGH-TV*. July 23-24, 2019. Link: <https://www.thedenverchannel.com/news/local-news/two-coloradans-the-first-to-respond-to-florida-lightning-strike-victims>

Sawyer, L., 2019: Girl Scouts Hurt by Lightning Evacuated from Boundary Waters on Overnight Rescue. *Star Tribune*, July 27, 2019. Link: <http://www.startribune.com/girl-scout-group-reportedly-stranded-in-bwca-with-lightning-injuries/513277462/>

Hodanish, S., B. Vogt and P. Wolyn, 2019: Colorado Lightning Climatology. *J. Operational Meteor.*, 7 (4) 45-60. April 4, 2019. Link: <http://nwafiles.nwas.org/jom/articles/2019/2019-JOM4/2019-JOM4.pdf>

Web Staff, 2019: Denver Man Killed in Boulder County Lightning Strike, Woman Injured. *KDVR-TV*, July 14, 2019. Link: <https://kdvr.com/2019/07/14/denver-man-killed-in-lightning-strike-woman-injured/>

Unknown Author, 2019: 1 Hiker Killed, 1 Injured When Struck by Lightning in Boulder County. *KCNC-TV*, July 14, 2019. Link: <https://denver.cbslocal.com/2019/07/14/hikers-lightning-bear-peak/>

Garrison, R., 2019: Denver Man Hiking on Bear Peak Dies After Being Struck by Lightning; Wife Injured. *KMGH-TV*, July 14-15, 2019. Link: <https://www.thedenverchannel.com/news/local-news/2-bear-peak-hikers-injured-after-lightning-strike>

Singh, I., 2019: Lightning Storm Kills 39 in Eastern India. *ABC News, Associated Press*. July 24, 2019. Link: https://abcnews.go.com/International/wireStory/lightning-storm-kills-20-eastern-india-64528032?cid=referral_taboola_feed

Brackett, R., 2019: Florida Lightning Strike Causes Toilet to Explode, Homeowner Says. *The Weather Channel and WINK-TV*. Undated. Link: <https://weather.com/news/news/2019-08-06-lightning-strike-causes-florida-toilet-to-explode>

Cappucci, M., 2019: Florida Home Sees Freak Toilet Explosion During Thunderstorm. *The Washington Post*, August 8, 2019. Link: <https://www.washingtonpost.com/weather/2019/08/08/florida-woman-suffers-freak-toilet-explosion-during-thunderstorm/>

Watson, M., 2019: Spearfish Woman Recalls Lightning Strike. *Black Hills Pioneer*. July 11, 2019. Link: https://www.bhpioneer.com/local_news/spearfish-woman-recalls-lightning-strike/article_b6a33a7c-a40a-11e9-8937-1f2db2fb2958.html

1918: Best Place To Go To Avoid Lightning. *Philadelphia Enquirer, as written in the Arizona Republican*. November 10, 1918. Link: <https://chroniclingamerica.loc.gov/lccn/sn84020558/1918-11-10/ed-1/seq-4/#date1=1789&index=4&rows=20&words=lightning+LIGHTNING&searchType=basic&sequence=0&state=Arizona&date2=1963&proxtext=lightning&y=6&x=13&dateFilterType=yearRange&page=1>