

**LIGHTNING DATA CENTER MINUTES**  
**September 11, 2015**  
**ST. ANTHONY HOSPITAL WEST, LAKEWOOD, CO**

Monthly Quote: “The bark exploded like flying daggers.’...’ Wooden shrapnel was found a block away on top of two-story roofs.” From CBS4Denver, June 4, 2015. Link: <http://denver.cbslocal.com/2015/06/04/lightning-strikes-tree-in-lakewood-sends-wood-like-daggers-into-homes/>

1. Meeting began at 11:50 AM and adjourned at 1:20 PM. Members Present: Clark, Swanson, Yarnell, Stewart, Elder, Wachtel, Leenheer (Jerry & Cora Jean), Nibbe, Gift, Cui-Gift, and Cachet. Clark moderated.
2. Greg Stewart presented some “lightning in the news” items.
  - A photograph taken by astronaut Kjell Lindgren was described of a lightning strike illuminating solar panels of the International Space Station. Link: <http://www.nbcnews.com/science/space/lightning-strike-reflects-international-space-station-n421841>
  - Greg referenced an article about a lightning death in Lehi, Utah. It was the first fatality of the year in that state. According to the article, the patient was revived on scene, but died three days later. Greg questioned if this case was unusual for the time interval between revival and subsequent death. Phil noted the word “revived” needed to be used with care, as this is dependent upon establishing a heartbeat. A National Weather Service meteorologist said most fatalities occur not from a direct strike, but from being shocked while near larger objects, such as trees and poles. Greg asked whether the fatality rate is lower for direct strikes even when the frequency of indirect strikes is factored in. Discussion of fatalities from direct versus indirect strikes followed. Since 1950, 66 people in Utah have died due to lightning, a surprisingly low rate given all the recreational activity in the state. Link: <http://www.foxnews.com/us/2015/09/04/utah-softball-coach-dies-after-lightning-strike-at-family-picnic/>
  - Lightning killed 32 people in two different regions of India in one day. Most of the fatalities were people working on farms during heavy rains. Greg commented that flash rates during the monsoon season, the large number of farm workers and gaps in safety education are all likely factors contributing to loss of life. Link: <http://www.bbc.com/news/world-asia-india-34171362>

3. Professor Derek Elsom of Oxford Brookes University wrote a paper, which was published in the September 2015 edition of *Weather*, the monthly magazine of the Royal Meteorological Society. This paper addresses the historical decline of lightning fatalities in the UK since the 1850s. He compares his analysis to those of Ron Holle and others. The paper addresses some of the possible reasons for the long-term decline of lightning fatalities, such as: occupational trends over time, improved medical care, changes in annual thunderstorm frequency, and greater awareness of the lightning risk.

Professor Elsom has also written a book titled: *Lightning: Nature and Culture*. The book will be available in the Americas through the University of Chicago Press in October 2015.

4. Carl Swanson gave a presentation about the site inspection he did at the property of the man struck while pruning trees, who was featured in last month's meeting. Here is some of what Carl found.

- The distance from the man's house to the area where he was found down on the ground is approximately 282 yards, across a valley floor, then up the hill where he was.
- Pea to marble-sized hail was recorded at a neighbor's home.
- The tree the patient was pruning was the tallest in a group of three trees.
- The lightning channel on the tree was mostly on the northwest side of the tree, and then slightly towards the east before terminating.
- The man was found lying on rock (gneiss) and the dog was found above the man's head on dirt.
- By pure luck, one of the first responders was also a veterinary tech. He did not see any exterior wounds anywhere on the dog's body.
- From the ground, the start of the scar was approximately half way up the tree and the end was approximately three-quarters of the way up the tree. The lowest part of the scar was approximately 20.5 feet above the ground and the scar went up the tree for about 8 to 10 feet, as estimated visually.
- Carl thinks the dog died due to ground current.
- CPR was discussed. CPR was kept up for 20 minutes. We discussed "standard duration" of CPR versus the many variables involved. For this patient, it was suggested he might have retained a minimal heartbeat following the strike. His skin had begun to turn purple when help arrived.

5. The LDC received a call from a man who resides in the Denver metro area. He said lightning had struck his home and he wanted to talk to us about it. Between his house and the neighbor's house, there is a solitary cottonwood tree about 125 feet tall and about 40 feet away from his house. The main tree trunk is about 4 feet in diameter. About 5 feet up the trunk, two branches, each about 2 feet in diameter, grow apart in a V shape. On the night in question, he had been out when a storm came. He had to get back home to shut the windows, which faced the tree, to keep out the rain. He had pulled down one of the windows to within 2-3 inches of being shut and had turned his shoulders about 45 degrees from the window with his feet still planted on the floor, when he felt like he had been poked with two fingers in the back of his shoulder, just above the armpit. There was no tingling or other electric sensation. For about 2 weeks following the strike, he felt a persistent ache. There were two small red marks on his shoulder. No fernaling or other physical effects were reported. When he felt the poking sensation, he heard a loud crack of thunder. He wants to know what happened.

Phil recalled the case where a patient was standing in front of a plate glass window on a patio and suffered facial paralysis. In that case, the window was closed. Howard Wachtel thought the electricity could have passed through the glass, as the conductivity of glass and air are similar.

Lightning channeling was observed on the main tree trunk and BOTH of the 2-foot diameter branches. The tree is substantially taller than the houses. Carl Swanson is working to arrange a site inspection of the man's property.

This man has had previous experiences with lightning. As a paramedic, he saw lightning strike a kid on a playground. The kid survived. On Guanella Pass, he performed CPR on a strike victim. The victim survived. Discussion of lightning safety for first responders followed. Many of the same themes noted in the May 2015 minutes were repeated here.

6. Questions, comments, notification of errors, and critiques of these minutes are welcome. Please forward those to Steve Clark at: [sclarktoto@gmail.com](mailto: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.
7. 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.
8. Next meeting: Friday, October 9, 2015 at 11:45 AM at St. Anthony Hospital West. Conference Room 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.**

Elsom, D.M. 2015. Striking Reduction in the Annual Number of Lightning Fatalities in the United Kingdom Since the 1850s (Abstract). *Weather*, **70**, 251-257. Link:

<http://onlinelibrary.wiley.com/doi/10.1002/wea.2493/abstract>

Chicago Press citation of Professor Elsom's book - *Lightning: Nature and Culture*. Link:

<http://press.uchicago.edu/ucp/books/book/distributed/L/bo22258034.html>

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Mims, B. 2015. Lehi High Softball Assistant Dies Three Days After Lightning Struck Her. Salt Lake Tribune. Sept. 3, 2015. Link: <http://www.sltrib.com/home/2908205-155/lehi-high-school-softball-coach-dies>

Associated Press via Fox News. 2015. Utah Softball Coach Dies After Lightning Strikes at Family Picnic. *Foxnews.com*. Sept. 4, 2015. Link:

<http://www.foxnews.com/us/2015/09/04/utah-softball-coach-dies-after-lightning-strike-at-family-picnic/>

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Wagstaff, K. 2015. Dramatic Photo Captures Lightning from Space. *NBCNews.com*. Sept. 2, 2015.

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BBC News. 2015. Lightning in Indian States 'Kills 32'. *BBC.com*. Sept. 7, 2015.

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