

Mar. 12, 1999 Minutes **Lightning Data Center** Centura Health St. Anthony Central

Quote of the Month: (1755, From Johnson's Dictionary: A Modern Selection)

"Thunder. (1) *Thunder* is a most bright flame rising on a sudden, moving with great violence, and with a very rapid velocity, through the air, according to any determination, upwards from the earth, horizontally, obliquely, downwards, in a right line, or in several right lines, as it were in serpentine tracts, joined at various angles, and commonly ending with a loud noise or rattling. Muschenbroek. (2) In popular and poetick language *thunder* is commonly the noise, and *lightning* the flash; though *thunder* is sometimes taken for both."

E.L. McAdam & George Milne 1963

1. Meeting began at 11:30 am and adjourned at 1:45 pm.
2. Member present: Breed, Cherington, Clark, Collier, Foley, Glancy, Kamin, Keen, Kithil, Langford, Lines, Toler, T Wachtel, Yarnell.
3. I brought the following articles (parts abstracted here). They accompanied presentations at the 79th Annual American Meteorological Society Meeting in Dallas in January 1999. The first 3 are from the section: 11th Conference on Applied Climatology; The fourth is from the section: 8th Symposium on Education.

a. Cherington M, Walker J, Boyson M, Glancy R, Hedegaard H, Clark S. Closing the gap on the actual numbers of lightning casualties and deaths. *11th Conference on Applied Climatology*, January 10-15, Dallas, TX, American Meteorological Soc, Boston, 1999: 379-80

"We at the Centura Health Lighting Data Center have analyzed several databases in an attempt to learn how many people are injured or killed by lightning in Colorado. Until recently, the only source for the numbers of lightning casualties was NOAA's Storm Data...In this study we were able to obtain for the first time data on may Colorado emergency room patients, as well as inpatients and deaths...The numbers of lightning injuries are underreported by 29% (51 versus 100); the number of deaths by 11% (8 versus 9)."

b. Holle RL, Lopez RE, Curran EB. Distributions of lightning-caused casualties and damages since 1959 in the United States. *11th Conference on Applied Climatology*, January 10-15, Dallas, TX, American Meteorological Soc, Boston 1999:363-70.

"Florida led the nation in actual deaths and injuries. The largest number of damage reports came from Pennsylvania...When population was taken into account, Wyoming and New Mexico led the nation in death, injury, and casualty rates... July maxima existed for all lightning reports...Two-thirds of the casualties occurred between 1200 and 1600 Local Standard Time."

c. Lopez RE, Holle RL. Climate related trends in the number of lightning deaths during the twentieth century. *11th Conference on Applied Climatology*, January 10-15, Dallas TX, American Meteorological Soc, Boston, 1999:371-8.

"Long-term fluctuations in the number of lightning deaths from 1900 to 1991 have been examined by analyzing lightning death data compiled by the Bureau of the Census and the Public Health Service..The..series revealed the presence of a...

trend in the number of deaths per million people producing a decrease from more than 6 deaths per million to less than 0.5 during the 92 years of data. This exponential trend is also present in the decrease of the rural US population for the period.”

d. Vavrek RJ, Eggers, HW, Holle RL, Lopez RE. Updated lightning safety recommendations. 8th Symposium on Education. January 10-15, Dallas, TX, American Meteorological Soc, Boston 58-61.

“Areas addressed by the LSG (Lightning Safety Group):

- A. Identifying safe and not so safe locations during thunderstorm activity
- B. Safety Guidelines for individuals
- C. Safety Guidelines for Small Groups
- D. Safety Guidelines for Large Groups
- E. First Aid Recommendations for Lightning Victims”

4. We discussed preliminary plans for our June meeting when our guest speaker will be Dr. Elisabeth Gourbiere of France. The LDC meeting will be on the first Friday of that month, June 4. Two social events are being planned: a dinner meeting at 6 pm on June 4 at the Wellshire Inn. There will be a picnic style dinner at 5 pm on Saturday June 5 at the Cheringtons' home.
5. Rich Kithil donated a video on Lightning Safety to the LDC library. We watched the video that runs about 10 minutes. It gives a concise summary of the subject that should be useful to any group interested in learning about lightning safety. Rich provides some inventive “buzz words” to help remember some of the messages:

“If you can hear it (thunder), clear it;
If you can see it (lightning), flee it.”
6. Bob Glancy opened a discussion on telephone-related lightning injuries. He asked whether there was any less danger in neighborhoods with buried telephone lines. Several members answered: “no.” Mike Foley stated that the ground potential difference between the telephone and the cable is critical even in buried cables. Gene Lines reported that he knows of a house in Genessee (Foot Hills) where the telephone lines are buried. Lightning caused damage to the phone and all its connections including modems.
7. Phil Yarnell discussed 3 patients injured by lightning that he recently saw. Interestingly, none of these patients were outside. One was in an office, one in a house, the third in his truck.
 - a.) A sheriff was struck while typing at her computer during a lightning storm. That happened 6 years ago. She has been diagnosed as having post-traumatic stress syndrome.
 - b.) A 65 year old man presented with dementia. He was in his truck in 1981 when it was struck by lightning. Phil pointed out that the question of causality is often raised in these kinds of cases.
 - c.) A 12 year old boy was standing by the sink indoors when lightning struck. He was diagnosed with attention deficit hyperactive disorder.
8. Ken Langford brought two publications:
 - a.) *American Journal of Nursing* - August 1992 on Lightning injuries. He said the

article deals with phenomenon of lightning current traveling over the rain soaked skin to the ground.

b.) Lightning dissipation array tests in Florida in 1989 in Florida by John Garry. Rich Kithil brought a related article: The applicability of lightning elimination devices to substations and power lines. by A. M. Mousa in *IEEE*, Oct. 1998.

9. Dan Breed brought his daughter to the meeting. Dan reported that his house was struck by lightning in July 1998. His daughter stated that she received an electrical shock at the time of the lightning strike, when she touched the VCR. She said she had transient numbness in her arm. Fortunately, there were no residual symptoms.

Dan brought in several articles on lightning casualties from the *Journal of Meteorology, UK*; and from *Weather*, an English journal.

10. Rich Keen brought up a subject that we have discussed here in the past - should one keep running for shelter during a lightning storm, or assume the crouched, "baseball catcher" position. He pointed out that most people could not stay in that uncomfortable position for a long period of time. Rich Kithil and Mike Foley joined the discussion. It was agreed by all present that often these are judgment calls that vary in different situations. Rich Keen made another point that all could agree on -- "anticipate the weather" and take action before one is "trapped" in a most difficult situation.

Bob Glancy and others introduced another subject that we have discussed in the past. The dilemma characterized by "calling wolf" too often. He asked: how often will people obey rules such as the 30-30 rule? Mike Foley commented that rules are often societal problems. For example, society could impose rules (eg. reduce speed limits from 55 mph to 35 mph) in an attempt to reduce injury and risk, but some might not obey rules that seem arbitrary to them. Gene Lines asked: should companies instruct people working at computers to stop typing during a lightning storm outside? These are serious problems. We invite comments from members who were not present today. Please reach us by email or post.

11. Gene Lines told us of an Early Warning Lightning System that has been developed by a French Company. The system is a high frequency system that can detect: a.) early cloud to cloud lightning; b.) beginning cloud to ground lightning; c.) 3 cloud to ground lightning strikes. Dan Breed and Ken Langford discussed cloud to cloud lightning as precursor to cloud to ground lightning. Ken stated that for every cloud-to-ground strike there are (on average) 7 cloud-to-cloud strikes.
12. These minutes reflect the comments of members present and do not represent official positions of LDC.
13. Next meeting: Friday, April 9, 1999 at 11:30 am in the Main Auditorium of St. Anthony Central Hospital.

Respectfully submitted,

Michael Cherington, MD
Chair, LDC Scientific Committee