



**LIGHTNING DATA CENTER**  
**March 9, 2007**  
**Minutes**  
**St. Anthony Hospital, Denver, CO**



Lightning Data Center  
St. Anthony Central Hospital  
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Quote of the Month: In a March 1747 letter to British friend Peter Collinson, Benjamin Franklin wrote "I never was before engaged in any study that so engrossed my attention," regarding his experiments with electricity. The following year Franklin retires from printing to pursue science and a new understanding of electrical properties and uses. (Smithsonian magazine, March 2007, pg 28, This Month in History)

1. Members present: Clark, Clemans, Foley, R. Gift, Y. Gift, Keen, Langford, McDonough, Mullan, Nibbe, Olsen, Wachtel, Swanson, Wells, and Yarnell
2. The scheduled presenter, Sharon Morris, Park County, Colorado Coroner's Investigator was scheduled (rescheduled from the January meeting) to present a case study of a May 2006 lightning fatality. Once again, due to her job responsibilities she was not able to attend. As case studies are an important component of the LDC meetings, attempts will be made to reschedule the presentation.
3. In lieu of a scheduled speaker an expanded round table discussion was conducted. A summary of topics discussed is as follows:
  - a. Mike Foley presented articles from various engineering and electrical publications:
    1. EMF and Childhood Leukemia; Electrical Construction & Maintenance, Sept. 2006. The article summarized past and current (no pun intended) research of the possible health effects of exposure to electric and magnetic fields. Howard Wachtel commented on the local Denver issue that has been a source of debate – the erection of an HD TV antenna tower on Lookout Mountain and the question of RF radiation and the exposure to nearby residents.
    2. Lightning Protection and Bonding of Metallic Gas Lines; Building Fire Safety System, National Fire Protection Association Journal, Jan/Feb 2007, pg 62. This article discussed the potential for lightning damage to flexible

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metallic gas tubing (known as corrugated stainless steel tubing) resulting in holes or cracks in the tubing, allowing gas leaks that can result in fire or explosion. U.S. litigation has awarded homeowners financial settlements from the tubing manufacturer for installing a complete lightning protection system or for bonding and grounding improvements.

3. China Mitigates Lightning Damage; Transmission and Distribution World magazine, Dec. 2006, pg 42. This article discussed damage to overhead transmission lines (500 kV overhead power lines in the Hubei and Zhejiang Provinces). The lightning stroke pulse current (very large with a short time duration and a lower magnitude current (several hundred amperes) that continues for several milliseconds) with the latter component causes the outer strand of the power line aluminum conductors to melt, impacting the reliability of the vital power line. Changes to the design of the conductor (larger outer strands) are meant to withstand lightning strikes.
- b. General items of interest ;
1. Benjamin Franklin – In Search of a Better World exhibit at the Denver Museum of Nature & Science, March 2 thru May 20, 2007.
  2. International Roundtable on Lightning Protection; May 2-25, 2007, Colombo, Sri Lanka, organized by the Centre for Science & Technology of the Non-Aligned and other Developing Countries ([www.namstct.org](http://www.namstct.org)) and the National Science and Technology Commission, Colombo, Sri Lanka ([www.nastec.lk](http://www.nastec.lk))
- c. Ken Langford – There will be a Storm chasers conference held in Denver in November 2007. At the November LDC meeting, Tim Samarus, a Denver based storm chaser and thunderstorm researcher, will present never before seen ultra-high-speed video of lightning stroke formation.
- d. Carl Swanson discussed the local weather observer program: Community Collaborative Rain, Hail, and Snow Network (CoCoRaHS), a group of lay people who report on weather patterns around the state of Colorado. Carl also discussed a National Geographic program on Contrails and the “National Weather Modification Bureau” and whether contrails are a chemical trail.

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Lastly, he posed the question for discussion “has the frequency of lightning increased since 2002?”

- e. Our “resident leprechaun”, Noel Mullan, brought everyone cookies decorated with a green shamrock, to celebrate St. Patrick’s Day, March 17<sup>th</sup>.
- f. Steve Clark, one of the LDC founding members noted that due to a job change it has been a year since he has been able to attend an LDC meeting – Welcome back Steve!
- g. Gil McDonough discussed University of Florida research of Gamma ray induced lightning.
- h. Phil Yarnell discussed several topics:
  - 1.) In the current Mayo Clinic Proceedings there were articles concerning cell phone interaction with medical equipment and triggering implanted defibrillators by store radio frequency ID tags.
  - 2.) A discussion about an electric shock felt as a heat shock through a head set was brought up. Dr. Wachtel noted that you can have internal damage without any external signs. Commonly, resulting tinnitus could produce psychophysiologic dysfunction per recent Scientific American article.
  - 3.) An opportunity to study a fresh donated skin sample from a surgical procedure will be available in mid-May. Ideas are being solicited for how to try to duplicate the “ferning pattern” seen in lightning strike patients. Some preliminary thoughts were (etc. listed).
    - a. To expose the skin sample to a neon sign transformer – 15, 000 volt, 30 milliamp AC output.
    - b. To use a Tesla coil
    - c. Use a ballistic body gel with the skin sample.
    - d. Perform an SEM analysis pre & post exposure.
    - e. DC vs. ACPlease convey your thoughts to Phil on how we can make the most of this research opportunity. Any further ideas regarding this research opportunity would be welcome via email to LDC.
- i. Rich Keen, our local (Eldorado Canyon) weather spotter reported that there has not been any thunder snow activity so far this year.
- j. Sundee Clemons, representing the Donor Alliance Network, was a first time attendee. She commented on the most interesting scope and breath of the discussions.

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- I. Robert Gift mentioned that in the past he had exposed himself to the field of a Tesla coil.
- k. Tim Olsen discussed the “cough position” as now being suggested to mitigate the spread of germs. Sue Wiggins distributed an e-mail with a video clip provided by Tim.

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The April meeting speaker will be Dr. Al Nibbe, presenting “The Fundamentals and Physics of Lightning”

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These minutes do not represent official positions of LDC or attending individuals. Any inaccuracy in capturing the discussions presented is solely the writer’s responsibility.

These minutes are intended to capture the essence of the meeting as recorded and respectfully submitted by:

Michael J. Foley  
Co-Chair  
LDC Administrative Committee