

LIGHTNING DATA CENTER MINUTES
March 13, 2015
ST. ANTHONY HOSPITAL WEST, LAKEWOOD, CO

Monthly Quote: "We knew it would rain, for the poplars showed the white of their leaves, the amber grain shrunk in the wind, and the lightning now is tangled in tremulous skeins of rain." Thomas Bailey Aldrich

1. Meeting began at 11:50 AM and adjourned at 1:00 PM: Members Present: Clark, Swanson, Yarnell, Johnson, Langford, Wells, Nibbe, Elder, McNeil, Wachtel and Stewart. Clark moderated the meeting.
2. From our colleagues at the Yahoo Lightning Safety Group: The 8th International Symposium on Lightning Protection is open for papers which are due on May 15, 2015. The symposium will be held in Balneirio, Cambonu, Brazil, from September 28 to October 2, 2015. For more information, visit their website at: www.iee.usp.br/sipda.
3. Steve Clark presented an article from the March/April 2015 edition of Weatherwise about how the sun may play a role in increasing the amount of lightning over the United Kingdom. Researchers at the UK's Reading University say the sun's magnetic field will, at times, skew the earth's magnetic field, which allows galactic cosmic rays to interact with thunderstorms and enhance the frequency of lightning by approximately 50% over the UK.
4. Ken Langford showed us the 30/30 lightning rule book aimed at kids, prepared by the Florida Emergency Management Department and which was discussed in last month's meeting. Links for the book can be found in the February 2015 minutes. Ken also showed us an article he had just found discussing lightning injuries and fatalities in Canada.
5. Carl Swanson wanted to know how we might track the long-term progress of people struck by lightning who report having no ill effects vs. those who do not report any problems until a considerable passage of time following the strike. Howard Wachtel noted this would be an epidemiology study. Steve Clark said it would be difficult to track those who do not report any issues because there would no need for them to visit a doctor, if all is well.
6. Greg Stewart has a few items to share with us.

People who have lost a pet due to lightning can seek solace online at:
<http://www.lightning-strike.com/>.

Greg mentioned a video of lightning during a blizzard in County Mayo, Ireland, which can be seen here: <http://www.irishtimes.com/news/environment/power-of-nature-lightning-strikes-during-mayo-blizzard-1.2124201>

Lightning struck an aircraft as it approached Sumburgh airport at the Shetland

Islands. After being struck, the aircraft went into a steep dive. The lightning hit the radar cone in the nose and exited at the tail. Ball lightning was reported in the cabin. Link: <http://www.bbc.com/news/uk-scotland-north-east-orkney-shetland-31702943>

Greg also mentioned an article on the lightning at Venezuela's Lake Maracaibo, the site of "the most frequent lightning in the world." According to Graeme Anderson, an expert at the Met Office, the lightning is the most intense and predictable in the world because of a perfect mix of heat and humidity, along with winds caused by the Andes mountains. Link, along with some nice photographs: <http://www.theguardian.com/travel/2015/mar/11/venezuela-lightning-lake-maracaibo>

7. CORRECTION: Last month, Greg Stewart reported a failure of hydraulic systems in an All Nippon Airways Boeing 767-300 following a lightning strike. The incident occurred on 1/15/15. Examination of the aircraft after the strike showed damage to the left-hand flaps, which had been partially peeled off.
8. Phil Yarnell told us of a person that was standing near a glass door looking out at a storm when lightning struck nearby. The person had facial paralysis, with a clinical finding of Bell's Palsy. Phil wondered: If nearby lightning is able to cause heart arrhythmia, can it also cause facial paralysis? Howard Wachtel thought capacitive coupling could induce damage in the facial nerve. Phil said the facial nerve is extremely sensitive to TMS and thus wondered if the facial nerve could be damaged by a lightning strike. Phil also wondered if any literature discussed facial paralysis from electric shock. Ken Langford and Karen Wells each found a citation. See the Lightning Links section below. Al Nibbe thought it could be a circulatory issue. Phil notes the facial nerve is not sensory, so therefore, one may not know about the damage until trying to eat or smile.
9. Phil says there may be an anecdotal connection between lightning and Parkinson's Disease or motor neuron disease. Dr. Cherington had noted in the Archives of Neurology that Parkinson himself had written a paper on lightning injury titled: "Some Account of the Effects of Lightning" back in 1789. Ken Langford suggested contacting Parkinson's specialists to see if statistically high numbers of their patients have been struck by lightning. Online, people have asked about the possible relationship of lightning to Parkinson's. See the Lightning Links section below.
10. Al Nibbe presented a news article about a runner participating in a 100-mile race at high-altitude who was knocked down by a nearly lightning flash about halfway through the race. The runner was otherwise uninjured.
11. Phil Yarnell gave a brief presentation on lightning in Africa via the media, as

found on the website for the Centres for Lightning and Electromagnetics, which was established in 2013 and founded by Dr. Mary Ann Cooper, following her retirement. Here is some of what Phil presented:

- Photos of animals killed: Four elephants standing together, several cows standing along a wire fence, and several deer-like animals grouped together.
- Mass casualty events: In a church in Malawi, 8 were killed and unrevealed others were injured. In Kenya, a mother and 7 kids were killed in a grass-roofed house and in Kabule, 3 were killed and 4 others injured after seeking refuge in a house.
- In South Africa, 15 people were killed in 3 days. In Kenya, 20 people were killed in 1 week. In Nigeria, 19 were killed by lightning in one day.
- South Africa has one of the highest lightning-strike densities in the world.

What stood out most to Phil was the number of mass casualty events, versus strikes here in the U.S. Greg Stewart thought the high casualty rate is due to a combination of lack of infrastructure, education, and perhaps lightning intensity.

Greg mentioned an article featuring a lightning strike in Johannesburg. He showed the image to Lee Ann McNeil, who happens to be from South Africa. Here's the link to the image:

<http://702.co.za/articles/1750/dramatic-photos-of-lightning-gets-early-morning-twitter-abuzz>

12. Some further discussion was held on Carl Swanson's efforts to gather more accurate lightning strike data. Phil Yarnell said a large number of lightning patients in Colorado are sent to either North Colorado Medical Center in Greeley, or to the University of Colorado Burn Center in Denver. Phil recommended Carl contact them for data. Lee Ann McNeil said the trauma databases at hospitals will be a more accurate source for lightning strike data than will the EMS databases, since the trauma units will perform research to determine the nature of the injuries to patients. Phil and Ken will continue working with Carl on this project.
13. 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.
14. 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 service or product 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.

15. Next meeting: Friday, April 10, 2015 at 11:45 AM at St. Anthony Hospital West. Conference Room TBA.

Respectfully Submitted,
Steven E. Clark, Consulting Meteorologist

In Case You Missed It...Lightning Links

This is a monthly listing of periodicals, websites, and videos about lightning and allied areas as reported in the media. 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. Enjoy!

Cutlip, K., 2015: The Sun's Magnetic Field 'Pulls' Lightning Toward the UK. Weatherwise, March/April 2015, p.7.

“Sun's 'Magnet' Pulls Lightning Towards UK, Reading Scientists Discover”. Reading University Press Release dated November 19, 2014. On the web at: <https://www.reading.ac.uk/news-and-events/releases/PR612872.aspx>

Mills, B., D. Unrau, C. Parkinson, B. Jones, J. Yessis, and K. Spring, 2006: Striking Back: An Assessment of Lightning-Related Fatality and Injury Risk in Canada. Final Technical Report. On the web at: http://sirc.ca/sites/default/files/content/docs/pdf/lightningrelatedinjuriesandfatalitiesincanada_final-technical_1-september-06.pdf

Petty, D. 2014: Lightning Nearly Strikes Runner on Handies Peak. Denver Post, p. 3B.

African Centres for Lightning and Electromagnetics. On the web at: <http://aclenet.org/>

Facial Paralysis Citations

Ozkiris, M. 2014: Unilateral Sensorineural Hearing Loss and Facial Nerve Paralysis Associated with Low Voltage Electrical Shock. Ear, Nose & Throat Journal. Abstract on the web at: <http://www.entjournal.com/article/unilateral-sensorineural-hearing-loss-and-facial-nerve-paralysis-associated-low-voltage-elec>

Ahmed, I., W. Farham and L. Durham, 2007: Unilateral Facial Nerve Paralysis After Electrocution Injury. Journal of Laryngology and Otology. Abstract on the web at: <http://www.ncbi.nlm.nih.gov/pubmed/17156514>

Discussion of possible connection of Parkinson's Disease to lightning strikes

<http://en.allexperts.com/q/Parkinson-s-Disease-2096/Parkinson-disease-causes.htm>
http://www.braintalkcommunities.org/archives/06_11/showthread.php?t=21061
<http://forums.webmd.com/3/parkinsons-disease-exchange/forum/2>

Oberholzer, G. 2015. “Dramatic Photos of Lightning Strikes Gets Early Morning Twitter Abuzz”. Source: 702.co.za

“Power of Nature: Lightning Strikes During Mayo Blizzard” The Irish Times, March 3, 2015.

“Sumburgh Plane 'Dived After Lightning Strike' Says AAIB Report” BBC News, March 2, 2015.

Baverstock, A. 2015. “Venezuela's Nightly Lightning Show” The Guardian, March 11, 2015.
