

LIGHTNING DATA CENTER MINUTES
April 12, 2013
ST. ANTHONY HOSPITAL WEST, LAKEWOOD, CO
On the Web at: www.stanthonyhosp.org/ldc

Monthly Quote: “Few phenomena can compete with the raw beauty and devastating power of a raging thunderstorm, save for a particularly violent volcanic eruption. But when these two forces of nature collide, the resulting spectacle can be so sublime as to defy reason.” From “Volcanic Lightning: How Does It Work?!” by Robert T. Gonzalez.

1. The meeting began at 12:05 PM and adjourned at 1:05 PM. Members Present: Clark, Claus, Elder, Schoessen, Collier, Brown, Langford, and Stewart. Clark moderated the meeting.
2. Rick O’Keefe with the Yahoo Lightning Protection Group calls our attention to a lightning-caused fire at an oil refinery in Venezuela, which occurred don April 21, 2012. The article and a photograph are pasted in these minutes. The photo shows 3 tall lightning towers to the left of center, and what appear to be three smaller lightning rods on other structures.
3. Lightning struck and killed a horse at a horse-rescue facility in Florida. A photograph is attached, showing some of the damage to a plywood wall. It is worth noting that the roofing is corrugated metal. This structure was very similar to those seen in Asian countries, where lightning has killed large numbers of farm animals housed in these structures.
4. Clark presented a brief note from the Denver Post’s “YourHub” section. The Cherry Creek School District will be installing weather-monitoring equipment at its two largest stadiums. Part of this equipment does address lightning safety, in that it will indicate when it is safe to go outside.
5. Greg Stewart showed us a slide of a poster next to some lightning detection equipment saying the equipment had been knocked out of service after a lightning strike and to seek shelter during inclement weather.
6. Greg told us about NFL star Donte Stallworth who, with his girlfriend, had been on a hot-air balloon on March 16, 2013. The balloon was blown into nearby power lines by a strong downdraft. Stallworth was getting light headed: “I remember telling myself don't close your eyes. If you close your eyes, you're going to die.” Donte and his girlfriend both were injured and shocked. A link to a video about their story can be found below in the Lightning Links section.

7. Greg presented an interesting question about “thundersnow” and the difficulty ski areas have under those conditions. The obvious danger of lightning at a ski area is the lifts, due to their exposure on the mountain, and the cabling. Poma lifts and T-bar lifts are potentially worse, as the skier’s legs would complete the path down to ground from the cabling above. Typically, when thundersnow occurs, the lifts are shut down. At a ski area in December 2011, graupel as large as marbles fell for about an hour, followed by heavy snow, then lightning. The lifts were shut down for an hour. More recently, on March 29 2013, Vail Ski resort was closed for a while because of lightning at around 3 PM. All skiers had to evacuate. The lifts reopened 20 min later. Greg wonders why 20 minutes instead of the recommended 30 minutes, per standard lightning safety guidelines?
8. Greg showed us a YouTube video about so-called “dark lightning”. “Dark lightning” is not lightning in the true sense of the word, but rather, gamma ray bursts. Researcher Joseph Dwyer, with the Florida Institute of Technology at Melbourne, noted: “Dark Lightning appears sometimes to compete with normal lightning as a way for thunderstorms to vent electrical energy.” (Health & Science section, Washington Post, April 8, 2013). According to his calculations, one might receive in an instant the maximum safe lifetime dose of ionizing radiation. NASA has long been interested in satellite detection of gamma ray bursts from space. One day, a burst was found, but the source of the burst was from a large thunderstorm on earth – about 3000 miles away from the satellite. Now, NASA is seeking to launch a satellite that will monitor gamma ray bursts from the earth. See the Lightning Links section below for further information.
9. Our featured guest was a woman who had read the “After Shock” article in the January edition of 5280 Magazine. She had no idea a group interested in lightning existed here in Denver and wanted to check it out. About 3 to 4 years ago, she was living in western New Mexico. She was in her house in a corner bedroom on a sunny day in June with a cordless phone against her *left ear*, near two windows, one in each exterior wall. She believes the window 4 feet away from her right ear was open. She saw lightning and heard a loud, painful crack in her phone. She believes lightning struck the nearby power pole, but says there was no physical evidence of a flash on outside structures. The power went out in the house, but the phone was not damaged. She saw a flash outside her window before feeling a zapping sensation on the *left side* of her face. Her nerve endings around her right ear are damaged. She cannot sleep on her right side because she wakes up in excruciating pain around her right ear. After the strike, she had a bad headache for 5 days. Since that day she has a circle of pain on the top of her head, which feels like it has been sunburned. Immediately after the strike, her hearing was ultra-sensitive. Now it is sensitive to a lesser degree. Her long-term memory is not as good; she gets agitated a little more easily; and she has trouble focusing when teaching. The side of her head on which the phone was pressed was less injured. She is weaker on her right side, and has fallen down a few times as a result. She sought treatment from a family physician who initially teased her that she should now get better cell phone reception. Ironically, following the

incident she had 3 cellphones in 1 year, which would not function for her (same model every time). Ken Langford expressed doubt that this was strike related. The doctor looked in her ears and looked for marks on her head. No obvious physical marks were found. She was given a prescription for her headache. Other people on top of a mesa less than 2 miles away had a television destroyed by the same flash. It is not known if other electronic devices were damaged. Ken's conjecture was that this was a splash-type injury from the open window and was not primarily mediated by the cordless phone.

Greg recommended our guest get in touch with the Lightning Strike & Electric Shock Survivors International (LSESSI) group. A link to their website is in the "Lightning Links" section below.

Ken Langford read a previous case from 7/30/05 where a woman on a cordless phone was temporarily blinded by light. She dropped the phone. Her hands tingled and she felt like everything was happening in slow motion. Then she realized she had just been struck by lightning. Our guest reported she felt a tingling sensation too. Link:

<http://www.struckbylightning.org/news/dispolincidentdb.cfm?StartRow=1601>
and scroll down to 07/30/2005 to read the entry.

10. Next meeting: Friday, May 10, 2013 at 11:45 AM at St. Anthony Hospital West. Conference Room TBA. This will be a round table meeting.

Respectfully Submitted,

Steven E. Clark, Consulting Meteorologist

In Case You Missed It...Lightning Links

This is a monthly listing of news, articles, 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!

The possible radiation hazard to airline passengers:

<http://www.livescience.com/28594-dark-lightning-zaps-airline-passengers.html>

New data from NASA satellite. TGFs are detected from orbit by the Gamma-ray Burst Monitor (GBM) aboard NASA's Fermi Gamma-ray Space Telescope, which was recently upgraded and is now 10 times better at catching the phenomenon. More details:

<http://www.ouramazingplanet.com/3869-thunderstorm-gamma-rays-detected.html>

“Thunderstorms Contain ‘Dark Lightning,’ Invisible Pulses of Powerful Radiation – Washington Post Article

http://www.washingtonpost.com/national/health-science/thunderstorms-contain-dark-lightning-invisible-pulses-of-powerful-radiation/2013/04/08/1c796ebc-8a76-11e2-a051-6810d606108d_story.html

“Dark Lightning” Video from Science At NASA

<http://www.youtube.com/watch?v=hN0wGga5e0I>

Volcanic Lightning: How Does It Work?!

<http://io9.com/volcanic-lightning-how-does-it-work-459806533?>

Mom Shocked in Shower by Stray Electricity Gets \$4M from SoCal Edison

<http://www.nbclosangeles.com/news/local/Redondo-Beach-Edison-Lawsuit-Electricity-199173051.html>

Rick O’Keefe of the Yahoo Lightning Protection Group e-mailed me about a lightning-caused fire in Venezuela. Here’s a link to a series of videos and an article about the fire.

http://www.huffingtonpost.com/2012/09/20/venezuela-refinery-fire-b_n_1900415.html

“After Shock” article in 5280 Magazine

<http://www.5280.com/magazine/2013/01/after-shock>

Donte Stallworth in Stable Condition

http://espn.go.com/nfl/story/_/id/9059473/donte-stallworth-hurt-hot-air-balloon-accident

Donte Stallworth on balloon crash: 'I thought I was dead'

<http://www.local10.com/news/Donte-Stallworth-on-balloon-crash-I-thought-I-was-dead/-/1717324/19665486/-/29y3se/-/index.html>

<http://2thepointmusic.com/2thepointblog/2013/04/08/donte-stallworth-reveals-his-terror-during-the-hot-air-balloon-crash/>

Lightning Strike & Electric Shock Survivors International (LSESSI) Home Page

<http://www.lightning-strike.org/DesktopDefault.aspx>

Weather Stations Improve Stadium Safety (Cherry Creek Schools) Colorado

<http://www.cherrycreekschools.org/News/Pages/WxAlertSystem.aspx>

Lightning Strike Kill Horse, Injures Others (Video)

<http://www.9news.com/video/default.aspx?bctid=2286933432001&odyssey=mod|tvideo|news>

Damage to Plywood in Florida Horse-Rescue Facility. Snapshot taken from video on 9news.com / USA Today.



Lightning strike sparks fire at Venezuela plant



EL PALITO: Fire and smoke rises from fuel tanks at the El Palito refinery in Carabobo state yesterday. — AP

CARACAS: A lightning strike ignited a fire at a Venezuela oil refinery, officials said Wednesday, less than a month after an explosion at the country's biggest refinery killed 42 people. The fire "is under control and in just a matter of hours we will extinguish it completely" with the help of 120 firefighters, said Asdrubal Chavez, vice president of Venezuela's state oil company, PDVSA, in a television interview. The official said the lightning struck two gasoline storage tanks overnight in the El Palito refinery, in Puerto Cabello in the northern state of Carabobo. Chavez said the fire was out in one tank and the other was still burning.

El Palito has a capacity of refining 140,000 barrels of crude oil a day, according to PDVSA's website. Last month, a gas leak at the Amuay refinery triggered an explosion that killed 20 members of a national guard unit assigned to protect the facility, along with some members of their families. The fire spread to three storage tanks before being brought under control three days later. The refinery, Venezuela's biggest, had resumed operations by the end of that week. President Hugo Chavez has ordered an investigation into the cause of the massive explosion—the worst in the history of Venezuela's oil industry—while brushing aside accusations of declining maintenance and safety at the plant. Venezuela has the largest oil reserves in the world. Its reserves, which the government estimates at 297.57 billion barrels, surpass those of Saudi Arabia, which has the biggest refining capacity. — AFP