

**LIGHTNING DATA CENTER  
MINUTES  
SEPTEMBER 12, 2008  
ST. ANTHONY CENTRAL HOSPITAL, DENVER, CO  
[www.stanthonyldc.org](http://www.stanthonyldc.org)**

Monthly Quote: "And please...no UFO sightings (at least of the little green men kind)."  
From [www.sky-fire.tv](http://www.sky-fire.tv), under "Who should I call if I see a sprite?". Specifically:  
<http://www.sky-fire.tv/index.cgi/spritesbluejetselves.html>

1. Meeting began at 11:45 AM and adjourned at 1:10 PM.
2. Members present: Herrmann, Cherington, Langford, Gift, Cui-Gift, Keen, Clark, Stewart, Elder, Wachtel, Yarnell, wells, and Glancy. Ken Langford moderated the meeting.
3. The website redesign is about to get started. The executive committee met with St. Anthony's webmaster and a member of St. Anthony's marketing department. The executive committee will work with these people to lay the foundation for the new website. Later on, we'll be asking the members to assist. Stay tuned!
4. As promised, Steve Clark did an analysis of the rainfall record associated with the double-fatality lightning strike at the CSU campus. Clark reported the rain was falling at the scene of the strike for approximately 15 minutes prior to when the lightning struck, and thought the two sought shelter under the trees for about 10 minutes, as that was the approximate duration of the most intense rainfall, prior to when the tree was hit. That makes this incident all the more sad as these two men were within a few footsteps of substantial buildings near the tree that was hit. A written report was sent to Greg Fairman and Mike Foley.
5. Our featured speaker was Dr. Walt Lyons, a lightning researcher with FMA Research. He showed a DVD entitled "The Hundred Year Hunt for the Red Sprite". The DVD starts with the Big Bang and the formation of the stars, galaxies, and our solar system. The other planets and their atmospheres are briefly examined, and then earth's atmosphere is examined. Weather phenomena are reviewed ending with thunderstorms and lightning, which then serves as a lead-in to the topic of sprites. The video then highlights some of the advances of man's knowledge of these phenomena

Here, then, are some tidbits gathered from the show.

- At any given time, there are approximately 1,000 active thunderstorms on Earth.
- About 25 million lightning flashes per year are recorded in the U.S.
- In 1989, the first imagery of a sprite was recorded while cameras were being prepped for a totally different field experiment.
- In 1993, the first field experiments were conducted from observation posts in Colorado looking eastward above severe thunderstorms in Kansas. An association was found between the sprites and positive lightning flashes. So-

called “spider lightning” (lightning streaking along the anvils of thunderstorms) was also found to correlate with sprites.

- In 1995, another type of upper-atmosphere lightning was discovered, “blue jets”, aptly named for their color and narrow width, shooting rapidly skyward.

After the DVD, Dr. Lyons brought us up to our current understanding of sprites.

- In 2001, the first documented evidence of a sprite connecting from the troposphere to the ionosphere was captured.
- Sprites have been found to be more closely associated with mesoscale convective complexes (MCCs), which are large thunderstorm aggregates that form during the nighttime hours from individual storms. The lightning from these complexes is infrequent, but when it flashes, the current flow can be much greater than a normal discharge, since the complex acts like a huge capacitor, with plates that are hundreds of square miles in area.
- The colors seen are a result of the excitation of the nitrogen atoms during ionization. The actual color depends on the pressure of the nitrogen in the environment, which dictates the excitation level.
- More recently, scientists have discovered that thunderstorms emit gamma rays skyward from their tops.
- In 2005, researchers were able to detect these phenomena electronically by tuning in to the Schumann Resonance, which oscillates at approximately 8 Hertz. How much longer they will be able to do this is questionable, owing to funding issues.

For more information, go to [www.sky-fire.tv](http://www.sky-fire.tv). Thank you, Dr. Lyons, for a delightful presentation.

6. These minutes do not represent official positions of LDC or its members. They simply reflect the comments made at the meeting.
7. Next meeting: Friday, October 10, 2008 at 11:30 AM in the Main Auditorium of St. Anthony Central Hospital. Our speaker will be Rich Kithil of the National Lightning Safety Institute.

Respectfully Submitted,

Steven E. Clark, Consulting Meteorologist