LIGHTNING DATA CENTER MINUTES

August 14, 2020
ST. ANTHONY HOSPITAL
www.lightningdatacenter.org

Monthly Quote: "Man reading should be man intensely alive. The book should be a ball of light in one's hands." Source: https://quotlr.com/quotes-about-ball

1. Members Present: Clark, Yarnell, Swanson, Stemple, Terry and Larson. In addition, we welcomed two new members: Karl David Stephan, Professor of Physics at Texas State University at San Marcos, Texas and Richard Sonnenfeld with the New Mexico Institute of Mines and Technology in Socorro, New Mexico. Richard could not attend, but he is mentioned later in these minutes. Both gentlemen have a strong interest in the ball lightning phenomenon. Clark moderated. Meeting began at 11:50 AM and ended at 12:55 PM.

2. VERY IMPORTANT – PLEASE READ! Per the advice of hospital administration, this month's meeting was held via Zoom. For the time being, we will continue to meet only via Zoom. As usual, readers are urged to pay attention to e-mails and meeting announcements, since the COVID-19 situation is highly fluid.

3. The LDC is accepting donations, either as cash or check. If you donate via check, please make your check payable to Steve Clark at 755 S. Clinton Street, #2A; Denver, CO 80247. He will cash the check and keep the cash holdings specifically for the LDC. When the LDC incurs expenses, Steve will pay for services rendered through his bank account using the cash from LDC's cash holdings. A log will be maintained detailing the inflow and outflow of monies. Steve Clark spent $15 for the renewal of the domain name for the website. At the present, the LDC has $454.00 in cash.

4. Our ball lightning (BL) expert in Russia, Dr. Mikhail Shmatov, had a paper published last July. The abstract notes a possible correlation of a simultaneous increase in light bursts from a thundercloud and in gamma-ray counts to BL. Measurements were recorded at the Aragats Space Environmental Center, a high-altitude research facility. Several observational cases of BL are presented. A model of BL and the propagation of gamma rays from BL are discussed.

   Dr. Shmatov also sent me an old paper published in 1969 by M.T. Dmitriev. BL occurred naturally above a water surface. The ball was 13 centimeters in diameter and lasted for approximately 1.3 minutes. Measurements of atmospheric gases were taken in the vicinity of the ball. Concentrations of atmospheric gases were normal except for ozone and nitrogen oxides, which measured 100 to 200 times normal values. The paper concluded the long lifetime of the ball was due to the formation of a closed shell of cold negative ions around the ball, which limits ion diffusion and transfer from the central part of the ball to the surrounding air. According to Professor Stephan, this case is unique because it apparently is the only documented case of BL where gas samples were collected right after the BL sighting.

5. While we are on the subject of BL, Professor Sonnenfeld has put out a “Call for Papers”, which is a request for BL reports. With his permission, the request is shown in its entirety here.

   “Regarding Ball Lightning:

   I have not posted since we moved off of yahoo groups so I will greet the list and mention that I have been doing experimental physics for 40 years and (conventional) lightning research for 18.

   Ball lightning is the orphaned step-child of the lightning community. Lightning scientists have generally agreed it exists (as compared to ETs and Yetis) but few of us have seen it ourselves and there is almost no serious observational literature. One might argue that it is too "flaky" a topic for this list, but I have heard that insurance adjusters in some regions list ball lightning as a cause of damage when they can't figure out anything else. For that reason at the very least, I contend it would be good to know something rigorous about it and its association with natural lightning.

   In collaboration with Karl Stephan of UT and Alex Keul of Salzburg University I have created a website that features a couple of anonymized real reports and a questionnaire intended to solicit more complete reports than have typically been received. With accurate time and location information, we hope to initially check citizen science observations against lightning location and radar data. We have been working on the site and questionnaire through the summer and it went live tonight.

   Feel free to try our site with made-up data and comment on the questionnaire. (If your data is made up, please indicate that somewhere in the questionnaire -- or see how far you can pull our legs!)

   Real reports are even better!

   https://tinyurl.com/BLReport (Steve Clark’s Note: This is the link used to submit reports).

   If the moderators think it appropriate, I would ask you to help spread the word about this site. The last site in the US stopped operating around 2007 -- and it wasn't serious about helping amateurs report all the possibly salient details. I put a "Call for Papers" tag on this to mean a "Call for Reports".

   Thank you for your help!

   Richard Sonnenfeld
   Professor of Physics
   New Mexico Institute of Mining and Technology”

6. Professor Stephan told us of a BL researcher in Europe, Alex Kuel. In a small study, he used lightning data from EUCLID, Europe’s equivalent to the National Lightning Detection Network, to match observations of BL to detected lightning. Of 36 samples, he found a possible correlation between sightings of BL and positive lightning strikes.

Stephan describes himself as an experimentalist and has no theories, but he believes ball lightning is made of finely divided matter with some electrical aspect. He says the characteristics of ball lightning have yet to be replicated in the laboratory setting.

7. The Lightning Strike and Electric Shock Survivors International regional meeting scheduled for this November has been canceled due to concerns about COVID. Their website states: "Please Note: All 2020 in-person events have been cancelled due to the Corona Virus Pandemic." It is unknown if they will try for a Zoom-type meeting.

8. Carl Swanson's First Responder Data Collection Project has recorded in Colorado, as of the end of June, 1 fatality and 1 injury. Carl is waiting for further information from the responders in Colorado, but may be delayed due to COVD-19. From Tennessee, Carl received an ambulance report for a patient who was hit by lightning shortly after last month's meeting. Dr. Phil Yarnell reviewed the ambulance report and found the patient was responsive and denied needing medical treatment when seen at the location of the strike. Upon further examination, it was determined the patient needed to be taken to the hospital. While en route, her condition deteriorated from normal consciousness to comatose. 40 minutes into the ride, the patient reported feeling pain and 45 minutes into the ride, the patient was in a deep coma. Oddly, her vitals remained unchanged. During the ride, the patient was intubated. The ambulance report listed the patient as "affected" on the scene and unconscious at the end of transport. Following the meeting, Carl received word the patient had a severe episode of asthma, a pre-existing condition, caused by anxiety over the strike. No direct injuries were reported.

9. Barb Stemple reported she does not have any printed brochures to hand out. Lack of funds prevented it from being mass printed, but the brochure can be printed on anyone's printer. Steve Clark will work with her to ensure she has a sufficient number to hand out.

10. LDC welcomes your medical questions. Please send them via e-mail to Steve Clark at sclarktoto@gmail.com. Your medical questions will be forwarded to Dr. Phil Yarnell for his review and will usually be taken up for discussion in the next month's meeting. Please be advised any questions posed are for the general consideration by the group and do not constitute a formal medical opinion. If a formal evaluation is requested, arrangements can be made directly with Dr. Yarnell. If you have a medical emergency, please call 911 or your local EMS.

11. Questions, comments, error notifications, and critiques of these minutes are welcome. Please forward those to Steve Clark. Please keep your communications professional and respectful. Communications will be forwarded to the appropriate author(s) of the minutes and addressed accordingly.

12. 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 product or service 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.

13. Next meeting: Electronic Meeting via Zoom. Friday, September 11, 2020, from 11:45 AM to 1:00 PM MDT.

Respectfully Submitted,
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Lightning Links

This is a monthly listing of periodicals, websites, and videos about lightning and allied areas from a variety of sources. 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.

Dmitriev, M.T., 1969: Stability Mechanism for Ball Lightning. Translated from *Zhurnal Teknicheskoi Fiziki*, Vol. 39, No. 2, pp. 387-394, February 1969.

Shmatov, M.L., 2020: Possible Detection of Visible Light Rays and γ Rays from a Swarm of Ball Lightning. *Physical review E* 102, 013208 (2020). July 20, 2020. pp. 013208-1 to 013208-6. Link to Abstract: https://journals.aps.org/pre/abstract/10.1103/PhysRevE.102.013208