

Minutes April 12, 1996

Lightning Data Center

Provenant SAC

Quote of the Month:

"There was a ferocious thunder-storm that night, and it raged continuously until near dawn. The wind blew, the windows rattled, the rain swept along the roof in pelting sheets, and at the briefest of intervals the inky blackness of the night vanished, the houses over the way glared out white and blinding for a quivering instant, then the solid darkness shut down again and a splitting peal of thunder followed which seemed to rend everything in the neighborhood to shred and splinters. I sat up in bed quaking and shuddering, waiting for the destruction of the world, and expecting it. To me there was nothing strange or incongruous in Heaven's making such an uproar about Lem Hackett {a drowning victim}. Apparently it was the right and proper thing to do.... Every time the lightning glared I caught my breath, and judged I was gone."

Mark Twain in "Life on the Mississippi"
Chapter LIV.

1. Meeting began at 11:30 am and adjourned at 1:15 pm.
2. Members present: Breed, Carney, Cherington, Clark, Cusack, Goodman, Fischer, Hodge, Keen, Yarnell.
3. New member: Michael Goodman, Mechanical Engineer. Michael is completing his PhD program at the University of Colorado.
4. I brought an article by Lopez and Holle on "Fluctuations of Lightning Casualties in the United States: 1959-1990 in Journal of Climate, March 1996. Ron Holle sent this recently published article to me earlier this week. The authors discuss the data which show that the periods of low casualties match very well with the periods of low May-September surface temperatures for Colorado. Conversely, higher numbers of casualties match with periods of higher Colorado surface temperatures. Richard Keen said he was surprised by these correlations. Rich felt that higher temperatures might be associated with dry days and fewer casualties. George Hodge speculated that with higher temperatures there is more convection. Steve Clark suggested that with higher temperatures, there are more people enjoying the outdoors.

I brought newspaper and magazine accounts of recent tragic airplane accidents that apparently were related to poor weather conditions. The April 15, 1996 issue of Newsweek carried a story about the airplane crash in Croatia. Secretary of Commerce Ron Brown and others were killed in that crash. Radio beacons used to guide pilots were defective. According to the article, "it's conceivable that lightning disrupted the beacon's signal."

Ken Langford asked me to transmit a message during his absence this month. Ken stated on voice mail, that he has discussed his lightning safety bag with Richard Olsen who will provide help on developing serviceable materials. Ken will elaborate on this subject when he returns next month.

I am happy to announce that Mary Ann Cooper, MD of the University of Illinois will be visiting us at our May 10 meeting. She will give a talk on the Emergency Management of Lightning and Electrical Injuries.

5. Phil Yamell presented details from the El Paso County Coroner about the patient who was killed by lightning last year near the summit of Pikes Peak. His death was attributed to a cardiac arrhythmia. The lacerations on his face were ascribed to his fall after the strike. Physical findings included a ruptured left tympanic membrane and scorched body hair but no skin burns. We discussed how this patient was injured since he did not appear to have the signs (no wounds on the scalp or elsewhere) of a direct lightning strike. George Hodge speculated that the patient was in close proximity to the lightning flash (air temperature may have been as high as 50,000 degrees Fahrenheit) resulting in scorched hair and an induced cardiac arrest. Phil found in the coroner's report that the patient's binocular lens showed evidence of "thermal injury." This evidence lends support to George's idea. Phil will speak to the Coroner more on this subject and we shall discuss this case further at a future meeting.

Phil bought a copy of Andrew White's book: "The History of Warfare of Science with Theology in Christendom." Phil reported that the book discussed Benjamin Franklin's lightning rod and the reluctance of some churches to adopt this new technology because lightning was "divine intervention" that should not be challenged. After about 10 years, most churches had accepted lightning rod protection to their towers and steeples.

Phil discussed a case of a welder who suffered 3 separate lightning strikes. The patient now presents with a "post-traumatic stress" disorder. I mentioned that I recently saw a patient who is a welder. He told me that welders are exposed to manganese (Mn). Mn is a neurotoxin and a cause of Parkinsonism. Steve Clark remarked that Mn is a "transitional metal" that has a strong affinity for organic molecules.

6. Dan Breed commented on Benjamin Franklin's kite experiment that was described in a recent newspaper article. Dan reminded us that the kite was not struck by lightning. If it had been, Franklin would most likely have been killed. It was induced current that traveled to the key and arced to Franklin's knuckle.

Dan told us that NCAR is engaged in a new project this summer, an atmospheric chemistry experiment. Lightning is known to produce nitrogen compounds (NOX). Two NCAR aircraft with the capability to measure chemical changes will be employed. One the planes, a B-57, is an old spy plane. They will be making in-cloud lightning measurements during June and July.

Dan reminded us that there will be a meeting of the American Meteorological Society (Denver-Boulder Branch) on April 18 at Metro State College.

7. Richard Keen distributed a copy of the American Weather Observer that contained an article on two types of lightning detectors: 1) VLF and 2) Directional system. That issue also had information pertaining to NLSI (National Lightning Safety Institute).

Rich stated that the lightning season is upon us. He has recorded two lightning flashes from the Coal Creek Canyon Monitoring Station - one in March and the second one in April.

8. Steve Clark asked the group to answer the question: Can lightning occur without thunder? "No" according to Dan Breed. All lightning produces sufficient heating of

the surrounding air to produce thunder. Steve, also, reported that a recent television Nova program on lightning devoted a section to UFOs. The program provided information to debunk the claims of UFO kidnapping stories.

9. Dick Fischer distributed a report from the US Mine and Safety Administration pertaining to an incident on May 13, 1985 when 5 people were killed during a lightning storm. The 5 miners were sitting under a tree eating lunch at 12:20pm when lightning struck the tree. The accident occurred in Huntsville, Texas. According to witnesses, there was no thunder and only one lightning flash was seen. The oak tree was 35 feet tall.
10. Jerry Cusack reminded us that the Learning Cable Channel will broadcast a program entitled: "The Wonders of Weather -- Lightning" on May 29, 1996 at 7 pm. In Denver the program can be seen on Channel 61. Outside Denver on Channel 95.

Jerry discussed "a spectacular mountaineering lightning encounter" that was chronicled in the Estes Park Trail Gazette and in the March 1987 issue of Trail and Timberline (#815), a publication of the Colorado Mountain Club. The mountaineer party were on the east face of Mount Alice in Rocky Mountain Park when they experienced repeated and prolonged (hours) painful episodes related to buildup of static electricity -- "millions of.....crawling, jumping, glowing orange embers." This strange and frightening situation happened on the same day (August 1, 1976) that the tragic Big Thompson flood occurred. Hundreds of people were "swept to their deaths" in that flood below Rocky Mountain National Park.

Richard Keen commented that only twice has he witnessed severe CONTINUOUS lightning storms -- in 1976 (the Big Thompson calamity) and in 1985 (Cheyenne Wyoming storm).

11. George Hodge reported that a fire caused by lightning happened 2 days ago at the old Stapleton Airport. Lightning struck a fresh mulch pile. There were no casualties.

George mentioned that he has started a Lightning Web Page on the Internet. Melissa Carney will list his internet address on the Directory Update.

12. Next meeting: Friday, May 10, 1996 at 11:30 at St. Anthony Hospital Central MAIN AUDITORIUM.

Mary Ann Cooper, MD of the University of Illinois will be our guest speaker at that meeting.

Respectfully submitted:



Michael Cherington, MD

Lightning Membership List Changes/Additions:

NEW MEMBERS:

Wendy Abschire
American Meteorology Society
UCAR
P.O. Box 3000
Boulder, CO 80307

Pam Daale
Meteorologist, KMGH-TV
123 Speer Blvd.
Denver, CO 80203

Pam Rhodes
5909 East 38th Avenue
Denver, CO 80207

Gary Susnara
President/CEO Centura
5300 DTC Parkway, Suite 430
Englewood, CO 80111

CHANGES/ADDITIONS:

Todd Heitkamp's E-Mail Address: theitkamp@smtpgate.ssmc.noaa.gov
Correction to phone number: (605) 330-4247, fax (605) 330-4248

George Hodge's New Web Page: [HTTP://www.RMII.com/~ARSON](http://www.RMII.com/~ARSON)