

To: mfbowman@ix.netcom.com
Re: Request for lightning safety materials
Date: December 29, 1996
File: Michael Bowman msg 1.doc

Michael,

Thank you for your generous offer to distribute some lightning safety materials on the web. Let me tell you why I developed it and what I've got first, and then I'll trust you to decide how much you want to post or use. I'll append some of it to this message, then try to attach 2 1-page files to this message. I'll also attach this message as a file, so you might print it as 2 _ pages to read easier. You are obviously more computer literate than I, so you may have to coach me on attaching files. I'm not sure how it works, I've had limited success in the past. Apologies in advance for this long message.

Reasoning behind my research:

At our Cherokee Area Council Camp Skymont they (8 years before I was involved) had a lightning fatality and very serious injury of two 10 year old Webelos in a tent during a storm. One of the most tragic scenes I've EVER heard about, when I finally got to the bottom of it. I'll spare the details. Some Council adults still whisper about it, and some parents won't send their sons to camp because of it! A lot of false rumor and info has had time to develop on it, too. Very tragic, since most scout leader positions have turned over in 10 years and all they've heard is rumor. I heard 3 different implausible stories before I interviewed the eyewitnesses.

Skymont has more than its share of summer storms and lightning because it's located high (1000 ft., 7-800 ft. off the valley) on the western edge of the Cumberland plateau, and most summer weather comes SE from NW, from Nashville. The charged clouds unload their lightning into the elevated iron-rich soil of our camp. It travels farther horizontally along the ground because we have 6' of wet dirt on top of solid limestone. Many times again in the last 10 years there have been strikes and twice campers have been sent to the hospital (8 at one time), but fortunately no more serious injuries.

Now since my own son would be going there, I wanted to know what we're up against. As a professional safety engineer, I wanted to first review current technology, so I did a mini-project on my own in Spring '95. Local library weather texts, web sites, CD encyclopedias, ham radio magazine articles, and asked NOAA for materials. If anyone knows other good sources, I'll continue to accumulate stuff.

My product:

A check of my "lightning" subdirectory, shows 46 files totaling 3.2 MB. Most of these, however, are downloaded from about 10 web sites including a couple from NASA and some eqpt. companies who do consulting for radio & TV towers. A lot of GIFs and .htmls. You and other scouters can probably use only 2 files for sure, a fact sheet and part of our camp emergency procedure. I'm not sure any of it will be new to scouting.

I've seen some scout lightning protection info. somewhere, and I adapted my stuff right out of NOAA brochures.

I put all the info I gathered and copied into a notebook which is now about 2" thick. I don't think it would copy well, because some of it is getting dog-eared, and most of it is xerox anyway. Reading it gives one a pretty good education on the current state of science on the subject. The best printed material by far is a 12 page slick color brochure, NOAA/PA 92053, "Thunderstorms and lightning", Jan. '94, by NOAA, NWS and FEMA. The same thing is ARC 5001 by American Red Cross. Wallet cards are NOAA/PA 76018, "Lightning Safety", July '82, printed by USGPO 379-595.

Most past research has been to develop devices to minimize damage after strikes; lightning rods, arresters, etc. It seems to me there's a lot more room for "bleed off and prevent the strike in the first place" dissipation device research. The closest thing I've seen to success at this has been produced by Glen Zook, a ham operator (W5UOJ), who details a sort of hefty metal grounded "broom" mounted splines up, which can glow pink while it bleeds off the charge from the air. His antenna farm, close to the highest location in his town, has not been hit in 22 years, despite very damaging regular hits close by all around him. It's published in the Feb. '95 issue of "73 Amateur Radio Today".

How to prevent lightning at camp locations:

Our camp Directors and medical staff have looked at the notebook. We adopted a set of procedures for detection and pre-warning of approaching storms, i.e. observation & communication, alerting mechanisms, when to evacuate to the dining hall, etc. Things like monitoring ham radio Skywarn repeater nets on the Nashville side, NOAA freqs., etc. That stuff is specific to Skymont, and probably wouldn't do others much good, just prudent safety procedure. On the first day of each camping week, the Director spends 5-10 minutes on it in a general safety orientation and announcement session. All adults and campers are taught and practice the "lightning-safe crouch". Some campers have said they've experienced their hair tingling in a storm, and done the crouch. Maybe we've prevented something in just the last 2 summers. I don't know how many other scout camps may be in high-lightning areas of the country, but each would need to develop their own specific plans.

Making permanent campsites (we have 15) "lightning-protected areas" is possible in my opinion, but would take a lot of attitude and fortitude. Cut top limbs out of tallest site trees (Scouters cutting main campsite trees???). Install tall properly grounded (difficult for us) power poles taller than the trees in woods between sites to bleed off or draw strikes away from sites. To do an effective selling job to spend that much on something that's questionable, may have to wait for the next fatality, sorry to say. I hope my son won't be it. Normally, most people and our Board members still live with fear and myth that lightning is inevitable, not preventable, and just a normal risk of the outdoors. Money is always tight.

One relatively easy thing to do is have all tents on wood pallets and evacuate all campers to their tents before and during a storm. Train everyone STRICTLY to stay on

the pallets until an all-clear is sounded. Our fatality 10 years ago was just out of the lake, wet, and unknowingly standing on the GROUND between 2 pallets removing his bathing trunks so as not to get his floor or bedding wet. His best friend 3 ft. away, was on the pallet, and lived.

Excerpt from camp emergency procedures:

How you might avoid a lightning strike in the field (or woods):

IF CAUGHT OUT OF DOORS DURING AN APPROACHING STORM:

Lightning is the hazard to protect most from.

1. Avoid tall or isolated trees, open spaces, open water, wire fences, metal clotheslines, small sheds, metal equipment, wired telephones. Take off pack frames with external or internal metal frames.
2. Some protection may be found in dense forest in a depressed area, under short trees, where taller trees on higher nearby areas offer protection.
3. Do not huddle together in a group. Spread out at least 15 feet apart.
4. If your skin tingles or hair tries to stand on end, immediately do the "LIGHTNING SAFE CROUCH": Squat low to the ground on the balls of your feet, with your feet close together. Place your hands on your knees, with your head between them. Be the smallest target possible, and minimize your contact with the ground.

Michael, I will attempt to attach my "Lightning Facts and Preventive Action" handout page and our camp "Emergency Procedure - Thunderstorm" files to this message. they're in MSWord 7.0, and I use Netscape 2.0 mail, and I hope you get them. If not, I can fax them or US mail clean sheets suitable for copying. If I US mail, I could include my electronic subdirectory on 3 diskettes. Thank you for suffering through all of this message. I do hope some of this work could benefit others in scouting, to prevent what we had 10 years ago. I can correspond with any scout camp interested and in a high lightning area. Feel free to edit and paste. I consider all this in public domain. Again I appreciate your offer. If you need to call me, the phone is 423-894-8922, and my address is 1701 Julian Ridge Rd. Chatta. TN 37421. I'll look to correspond with you by e-mail.

YIS, Jack Wright.