

# LIGHTNING, THE UNDERRATED KILLER

By Robert Lindmeier

**EDITOR'S NOTE:** Bob Lindmeier earned his B.S. degree in meteorology from the University of Wisconsin-Madison in June of 1979. He started working for Weather Central in January of 1980 and has been there ever since.

Weather Central is a private firm that has provided weather forecasting to me and our club for the past ten years. The meteorologists at Weather Central provide a wide variety of forecast products to television stations, radio stations, newspapers, power utilities and many types of seasonal clients. There is a staff of twenty, including ten meteorologists.

Bob has served as Weather Central's Supervisor of Operations and as General Manager. Currently he is their Sales Manager as well as Chief Meteorologist for WKOW-TV. His primary duty is providing forecasts and on-air presentations to WKOW-TV (Channel 27 in Madison).

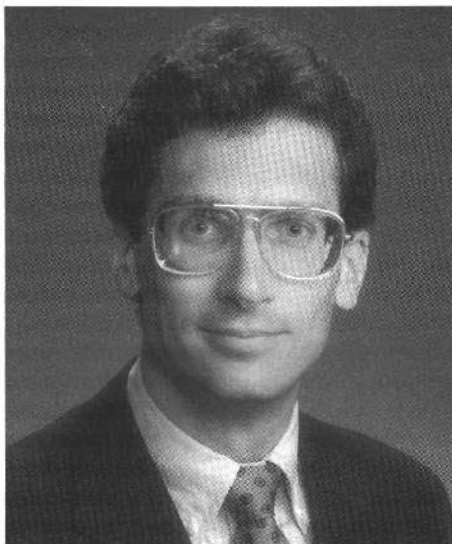
He also provides forecasts and broadcasts to fifteen radio stations and forecasts to many varied private customers, like us.

Chad Eberhardt and I, together, talk with forecasters at Weather Central many times a day, all summer long. Their quality forecasts of the upcoming weather help us plan nearly everything we do.

One of the things Bob Lindmeier likes to do in his spare time is play golf, giving him a good feel for how important weather is to golf course superintendents.

As a television meteorologist, I frequently give weather talks to school groups, business organizations and civic groups. My talks consist of a slide show presentation that tries to educate and entertain the audience about different aspects of weather. Through no coincidence a large part of my presentation involves talking about lightning. I have a sense that it's dangers are under-appreciated and I try to make the audience more aware of this underrated killer.

As an avid golfer and meteorologist, I am especially aware that golf courses and lightning can be a deadly combination. How dangerous is



Meteorologist Bob Lindmeier

lightning? Lightning kills and injures more people in the United States every year than tornadoes, floods or hurricanes. Although no exact figures on lightning fatalities are available—there is no central agency to which lightning accidents must be reported—it is thought to average between 150 to 300 annually. However, most people usually don't realize the magnitude of lightning deaths because they usually don't attract nationwide attention as do the more spectacular hurricanes, tornadoes and floods.

Golf courses provide one of the more dangerous settings for lightning deaths and injuries. It is estimated approximately twenty percent of all outdoor recreationists killed by lightning are golfers.

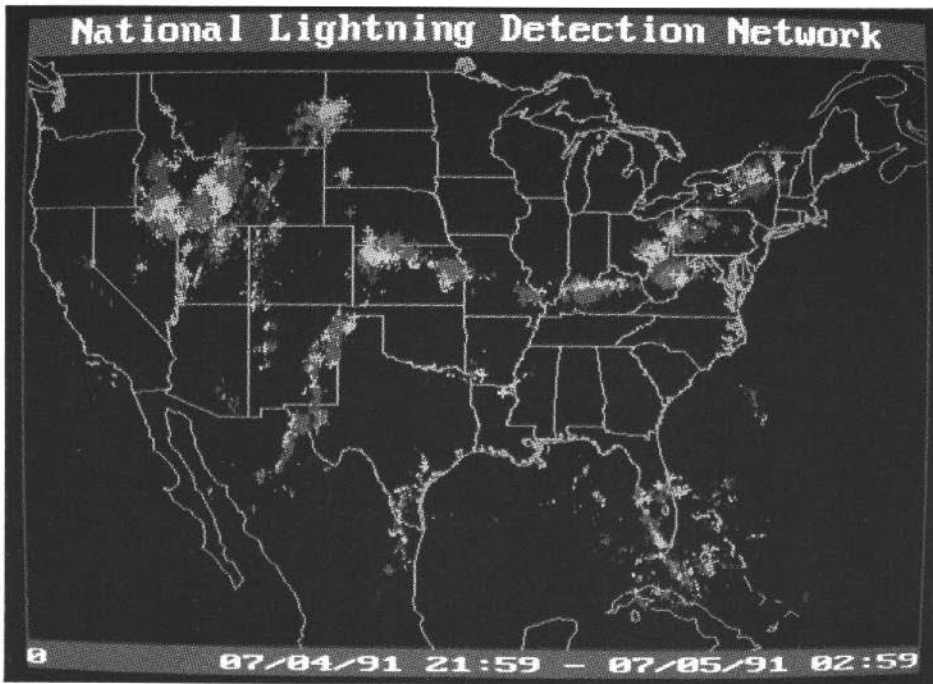
Why are golf courses so dangerous? Golf courses are generally open areas away from building with lone trees scattered about the area. The lightning stroke generally wants to take the shortest distance from the cloud to the ground, so objects extending up from the earth's surface are going to be attracted by lightning discharge, such as lone trees, people sitting on golf carts, or a golfer at the top of his backswing with a three iron in hand!

The largest single category of lightning deaths is composed of people who seek refuge under a tree during thunderstorms, and perhaps a third of these are golfers. However it should be noted that about two-thirds of people involved in lightning accidents subsequently make a complete recovery. Most, if not all, of these survivors are probably not struck directly by lightning, but instead receive electrical shock from being in the close vicinity of a strike.

When lightning threatens, all lightning experts agree that the most important thing you can do is get inside



A glimpse of Weather Central facilities.



**National Lightning Detection Network**

a home or a large building, or inside a vehicle. In a golf course setting this means getting the golfers back to the clubhouse before the thunderstorms move overhead. Golf courses use a number of methods to get some kind of advance warning of thunderstorms. Some watch the "Weather Channel" on TV or listen to the NOAA Weather Radio for location of thunderstorms. Other courses do nothing more than listen to an AM radio for lightning induced static.

If you want precise lighting information there are new lightning technologies available. Our Weather Central meteorologists use the National Lightning Detection Network (NLDN). NLDN, operated by Geomet Data Services, Inc., is the most sophisticated lightning locating system in the world. The NLDN consists of over 100 remote sensing stations that monitor cloud-to-ground lightning activity across the continental United States. At Weather Central we receive this information by satellite into a PC computer and use it in conjunction with radar and satellite information to precisely locate and track thunderstorms.

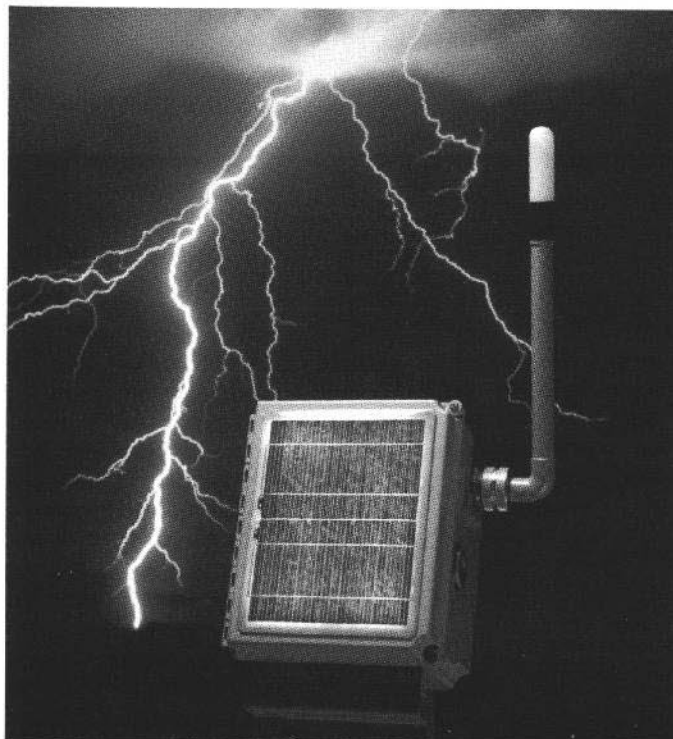
Lightning Location and Protection, Inc. has developed a new thunderstorm sensor called the Electrical Storm Identification Device (ESID) that accurately detects thunderstorms within a 25 mile radius. ESID is comprised of a Sensor and Display/Controller. The Sensor can be roof or ground mounted and is solar pow-

ered. ESID'S electronics detect lightning and determine its range, then activate control signals that can initiate back-up power alarms. This new technology is ideal for golf courses and is just now being distributed exclusively through TORO dealerships.

The effectiveness of NLDN and ESID were demonstrated during this year's Masters Tournament in Augusta, Georgia. Augusta National had a ESID in place, and a NLDN system was brought in for the tournament.

One day during the tournament the sirens sounded to clear the course even though skies were sunny. The NLDN system had picked up a developed line of thunderstorms heading towards Augusta National. When the thunderstorms came within 25 miles, the ESID also picked up the thunderstorms. By the time the storms moved overhead the course had been cleared well in advance, thanks to the advance warning provided by NLDN and ESID. After the thunderstorm line moved through clouds and intermittent showers lingered. However, ESID by that time picked up no lightning activity, so the tournament was allowed to resume.

An alternative to ESID is using the consulting services of a forecast company such as Weather Central. You can contract with our company for forecast services tailored specifically for your location. Thunderstorm information is just one of a number of weather services available to you. Our most basic service allows you to call into Weather Central to talk to a meteorologist for answers to your specific questions for your particular location. You will have the latest weather information to base your judgements, information that will not be available to the general public in a more general form for several hours. More elaborate services are available, such as receiving a faxed forecast form once or twice a day.



**ESID Solar-Powered Sensor**