

## I. COMMENTARY

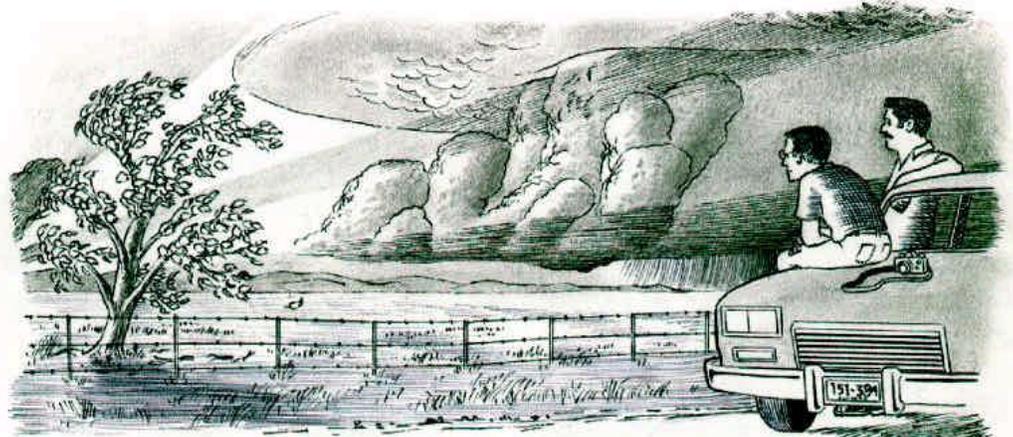
Storm Track is pleased to welcome many new readers this month. Since its notice in a recent issue of Weatherwise, ST subscriptions have grown by almost 25% and now go out to 28 states, Canada, Guam and the District of Columbia. Since many of you are new readers, it is appropriate to pause here, briefly, and review what storm chasing and chasers are about.

"Storm chasing" is a convenient short hand term but somewhat of a misnomer for what we do, suggesting a certain flair and dash, which sounds very casual and reckless. In fact, a great deal of planning and research precedes each spring's chase. Whether a professional meteorologist, student or lay person, a lot of study has gone into that preparation. Books, technical manuals and professional journals are reviewed. A sound understanding of the storm's structure and its hazards (lightning, flash floods and large hail) usually precedes actual engagement in the field. Thus prepared, a chaser then plans carefully his or her photographic gear and film selection. If not a resident of "tornado alley," the chaser packs for a several-weeks trip to the mid-west, with enough laundry for infrequent wash stops, selected snacks in place of missed meals, and all the other sundries of a well planned trip (maps, extra fan belt, first aid kit, flares, etc).

Upon arrival in storm country, each morning begins with national network news and early forecasts for later severe storm areas (if you don't have the Weather Channel or Cable Weather, CBS is pretty good). A morning stop at the local National Weather Service or the FAA flight service station lets you analyze current weather maps and data to develop a specific forecast. If the area is several hundred miles away, you can forget about breakfast or lunch until close enough to pick out the early storms, when they go up that afternoon. While driving, continually check and spot local radio stations to pick up clues on changing weather conditions; e.g. shifting winds near a front, revised local forecasts, early radar reports, reports on bridges washed out from last night's storm, etc. Check highways for most direct routes, watch the speedometer and fuel gauge, keep camera gear covered from the sun's heat, and of course continually watch the horizon for early signs of storms. Then you see something going up but, wait! You're starving! So stop for a quickie at the local drive-in, but eat light, stay light. Now, you close with the building storm, and the so called "chase" has just begun!

There is more, of course, but the Editor's purpose here is to characterize the planning, preparation and just plain bone-numbing driving over thousands of miles, which is required before each "good" storm is found. Chasers work hard at what they do. Skill, patience and a considerable tolerance for frustration precede each great photo or film.

We don't simply choose to do this sort of thing, like selecting which book to read or what pair of socks to put on. It is something we must do; somewhat like a sailor's feeling for the sea -- it runs deep. On the other hand, we're not much different from other very ordinary people, who pursue scuba diving, mountain climbing or spelunking in their free time. All of these activities take us out of the ordinary and into very different circumstances, where the best in us is repeatedly challenged to overcome some obstacle or reach some goal about which we care -- and which involves us totally.



Deadly, destructive and tragic for some, these storms are nonetheless sources of wonder and awe for chasers. The beauty and majesty of the sky, its constantly changing moods, light and color -- and the great storms that occasionally fill it are a never ending source of inspiration ... and a link, somehow, to the horizon and to the larger universe beyond.

Editor's note: Storm Track's records are filled with a lot of good material for future issues, including

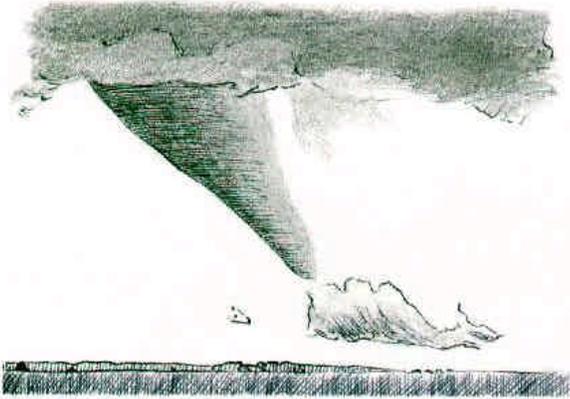
interesting chases, community warning programs, articles on unique weather events and more. So, if you've sent something in to the Editor and haven't seen it yet, don't despair. ST tries to address the timely articles/letters first, which would suffer more from delay than other material, but intends eventually to include all of the better and interesting submissions on file.

## II. ROSTER

Although no new readers have recently volunteered, this section is for those subscribers who are interested in corresponding with others regarding storms and/or storm chasing. If you wish to be listed, please send a short biography and account of your chasing experience, along with your address. Otherwise, I'll respect your privacy and not include you here.

## III. LETTERS/PHONE CALLS TO THE EDITOR

Kim Van Vleet from Nebraska sent a photo of an Iowa tornado that he caught on the way to work in the Severe Weather Section at Offutt Air Force Base, May 1, 1983 (High Risk Day). "...the weather radio blared a tornado warning for southeastern Nebraska. Since I didn't have to be at work for a couple of hours, I crossed the border into Iowa for a quick look.



The vortex (one of a family outbreak along the warm front) was still on the ground, but I didn't have enough time to get to it, so I turned the car around and headed back. Then, a little radio station down the road reported a tornado sighting just where I had come from. I took off back in that direction and pulled off on the shoulder next to a co-worker of mine, just in time to see a funnel come down and pick up some mud (it had been raining all day). When the tornado lifted off the ground, it rotated at an angle and, being my first chase, I suddenly remembered to grab the cameras. The tornado was about 3/4 miles toward the southwest ...

Later, it reminded me of one of the dust-devils down in Las Vegas. The funnel drew back into the cloud, and it got dry and warm. (Note: The white cloud toward the end of the funnel in the picture is a low cumulus cloud in the sun and in the dry tongue.) As it happened, I got to work before the report of the tornado." --- This spring, unfortunately, Kim missed several chase opportunities, while holding down the desk on the four to midnight shift, but did manage to send several of his friends to the vortex.

"The people that I relieve go home and watch from their window and backyards. Once this year, however, I did send a few eager souls down to Lincoln, Nebraska on an intercept. A couple of incoming phone calls and a tornado warning later, I realize that half of our shift is in the same -burg or -ville that this twister has decided to travel! 'Please, one more phone call to let me know if you're O.K. (or got any pictures)!' Maybe next time, these 'few eager souls' will (oops!) become just that.

Mike Watts writes from Florida with an interesting newspaper account about several twisters in the Soviet Union on June 9 this year, which killed 79 and injured over 128.

"Hardest hit was Ivanovo, a textile center about 120 miles northeast of Moscow ..." (Miami Herald, June 30, 1984). Seventy four were killed in Ivanovo, which is about 57 deg N, equivalent to northern Saskatchewan. Says Mike, "We don't get much info about severe weather in either place."



Jack Williams of USA Today wants to receive any eyewitness reports from chasers on major, local storms that cause severe damage or substantial casualties, which might be of interest to the national readership of that newspaper. If you see any such storms or, better yet, photograph them, please call either Jack Williams or Jim Norman, Sunday to Thursday afternoons or evenings on their toll free WATS line, 800-368-3024 x 3613, or call collect on 703-276-3613

More Requiems on "Chase '84"

Keith Brewster wrote, "In the words of many OU students, this chase season can be fittingly titled 'The Year of the Gust Front'. This was particularly true in the latter part of the season, when many a storm

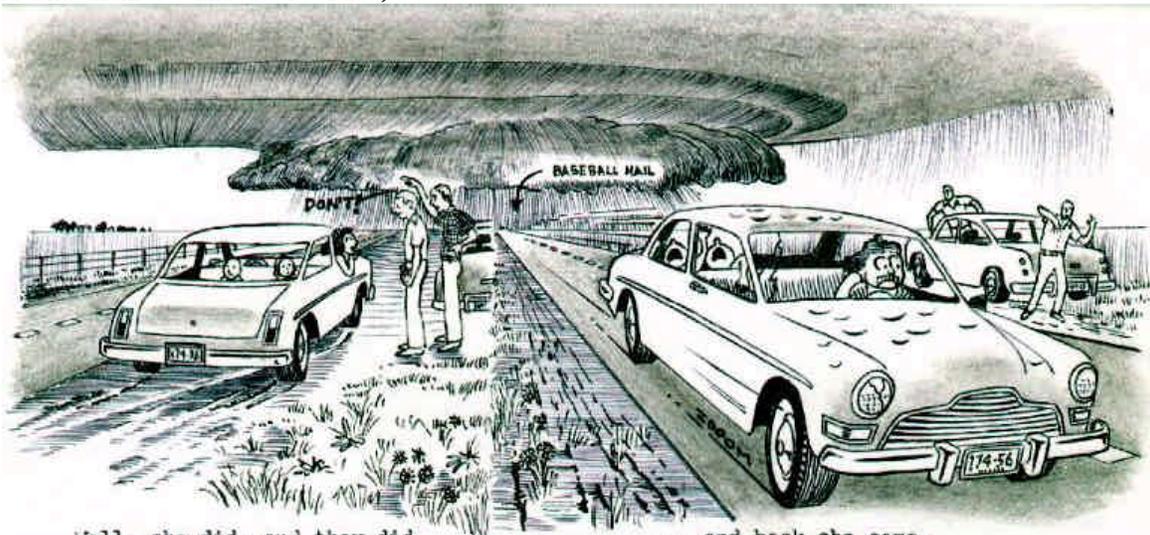
went up and 'gusted out' before chasers could get under them. Norman had three severe events in a period from April 27 to June 27, all straight line wind storms. The April 27 storm, which was an interesting interaction between two storm outflow boundaries, did produce one-inch hail at NSSL (National Severe Storms Lab) and some rotation south of Norman. Ken Wilk, Director of the NEXRAD group at the Lab, received some damage to his house from a tornado with that storm."

Tim Marshall - "What can I say? Mother Nature packed up the vorticity and headed north on vacation. Needless to say, scientists can't blame this poor chase season on El Nino. In any event, this was an average chase season for me. I was fortunate to get two weeks to chase, and I could pick individual days off. I put on an average of 5,000 miles in 14 chases, averaging 8 hours/day of driving. But where were my average 5 tornadoes? I only managed to see one on the ground and two well-developed gustnadoes. The tornado occurred near Stillwater, Oklahoma on April 26. On May 14, Roy Britt and I observed a collapsing supercell, which moved due south from Wichita Falls to near Mineral Wells. We photographed a nice rope funnel near Lake Arrowhead which lasted four minutes. Later, one of the 'shelf cloud' funnels touched down two miles south of Mineral Wells, causing some minor damage to trees and a residence. On the 21st, we ventured up to Kansas in desperation, but to no avail. However, on May 27, the best-looking May storm occurred. It had the classic look to it: large wall cloud, rotating rain curtains and rear flank downdraft, but never produced!"

#### FUNNEL FUNNIES:

##### We Told You So! We Told You So! (Fact)

Do you think that a mother with two small kids should stop for advice from storm chasers southwest of Silverton, Texas about whether she should continue west under a rotating purple and black pedestal cloud? (Her husband would be expecting dinner, and she didn't want to be late).



Well, she did -and they did  
-and she did, anyway!

... and back she came,  
like they said she would, and she did  
- like they said.

--- Contributed by Randy Zipser

#### IV. BULLETIN BOARD/COMMERCIAL MARKET -S- FOR PICTURES

Within the last year, I conducted a poll among storm chasers about commercial payments, which had been received for use of their storm slides, film and video tape. The purpose was to write an article which would identify a general price range and, at least, a minimum level of reasonable compensation which can and should be expected. This might help neophytes, and even some of the veterans, in arranging future deals; perhaps help establish a general price support level. As noted in my questionnaire, no names of respondents are used. I hope this will be helpful to you.

It should be noted that most of these pictures were of 'open' plains tornadoes, as opposed to front page city-busters. You can reasonably expect the latter to command a much higher price. If memory serves, the May 6, 1975 Omaha tornado sequence, taken from a local race track, brought \$3-4 thousand for a half dozen or more pictures. Of course, such film must be released right away to maximize these prices; getting them to the City Editor a week later will be worth less to him, and you.

One chaser offered this comment on retention of film rights: "I strongly urge people not to ever release all rights to a publication/publisher. They rarely want or need it; it should be on a

Specify Slide Print Movie Video	Specify Duplicate or Original	Payment and date received	Did you negotiate the price?		Name of publication, network or other	Was the image copy-righted?		Publication Color		Length in min. of film or tape	Use limits granted to requester (if any) e.g. 1 yr. 2 yrs, etc.	Did you give exclusive rights, precluding further use by you of your imagery?		Subject (tornado, funnel, etc.)	Contrast and color quality excellent, very good, good or other
			Yes	No		Yes	No	C	B&W			Yes	No		
16mm M & V	X	\$600/min. '83 <sup>1</sup>	X	X	Int'l movie prod.	X	X			Offered 10	Unlimited	X		Tornado	Good
M	X	\$500	X	X	California TV	X	X			2-3	TV special only	X		Tornado	Very gd. - Excellent
M	X	\$200 '82	X	X	Govt. PA video	X	X			5		X		Tornado	Good
M	X	\$25 each	X	X	Other chaser	X	X			3		X		Tornado	Very good
P		\$300 '82	X		Individual	X	X				None	X		Lightning	Excellent
15 P		\$100-125/ea. '75	X		Individual							X		Tornado	Very good
P	X	\$15 '83	X		Local newspaper	X	X			25		X		Tornado	Very good
Numerous S	X	\$100-500 per photo, depending on page coverage	X	(AS&P standard)	Textbooks and magazines	X	X			25-100		X		Tornadoes, Cb's, wall clouds, lightning, etc.	Excellent
4 S	X	\$1,850 '82	X		Time-Life Books	X	X			25-80	One time publication	X		CM, Cb & supercell	Very gd. - Excellent
2 S	X	\$500 '83	X		Time-Life Books	X	X			50	None	X		Cloud types	Excellent
2 S	X	\$325 '80	X		GEO (French Ed.) <sup>4</sup>	X	X			50	One time publication	X		Supercell	Excellent
2 S	X	\$275 '79	X		GEO (German Ed.)	X	X			50	One time publication	X		Supercell	Excellent
2 S	X	\$100 '84	X		USA Today	X	X			5	One time publication	X		Tornado	Very good
2 S	X	\$175 '78	X		National Geographic	X	X			50	One time publication	X		Supercell	Excellent
2 S	X	\$40 '76	X		The Weather Machine (BBC-TV documentary and book)	X	X			75	One time use only	X		Union City tornado with damage path in foreground	Excellent
Several S	X	\$25 each '82	X		Textbook	X	X			20		X		Tornado	Very good
10 S	X	\$153 '82	X		Texas Petroleum Svc.	X	X			Unknown	None	X		Cloud types	Excellent
5 S	X	\$75 '83	X		Weather Channel	X	X				Permanent, video only	X		Clouds & phenomena	Excellent
8 S	X	\$80 '82	X		Weather Channel	X	X				Permanent, video only	X		Clouds/seasonal	Excellent
S-P	X	\$4-5 each	X		Other chaser	X	X					X		Tornado	Very gd. - Excellent
S program	X	\$1.85 each '83	X		State agency	X	X			26	None	X		Severe weather	Good - Excellent
Several S	X	\$1-2	X		Scientists/friends	X	X				None	X		Tornadoes, etc.	Good - Excellent
S program	X	\$2 each '84	X		State agency	X	X			35	None	X		Severe weather	Good - Excellent

<sup>1</sup>From written agreement; producer has not decided how many minutes, if any, he will use.  
<sup>2</sup>20 X 30" matted and framed enlargement of LTG003.  
<sup>3</sup>16 X 20" blow-ups, custom made (cost \$18) and framed (cost \$15 each).  
<sup>4</sup>Publisher showed integrity by paying for publication; of which photographer had no knowledge.  
<sup>5</sup>Current asking price from this photographer is \$65 per slide.

per- use/one time basis. For television, such as cable, it may be used more often over a longer period. ...A book, of course, is printed once, and nearly all publishers pay on the basis of that printing, according to their budget and projected costs and income."

Another chaser received a few interesting suggestions from a television producer on some submitted tornado footage. Calling the chaser's film "good to very good" he added three specific suggestions; (1) Zoom slowly and steadily when refocusing, avoid fast and abrupt changes; (2) Place the camera on a tripod, especially in strong, gusty inflow winds (that can reach 40-50 MPH); and (3) try to include some action in the footage besides the tornado, e.g. chasers running to get into action, cars fleeing, lightning, etc). If your budget can afford it, 3/4" videotape cameras are preferred -- likewise 16mm movie film.

Some general conclusions from this survey:

(a) While film and video tape seem to bring more per storm on the basis of \$/minute, keep in mind that one minute is a very long time on commercial television. The station manager must consider the average viewers interest/attention span, as well as the sponsor's interests. Thus, I suspect that good slide/print pictures still command a higher price per storm, on average. However, this would probably not be true for a newsworthy tornado passing through a town or city, when film/video tape will likely command a much higher premium.

(b) If you have really good-quality duplicate slides/film, send these to the requester. Some commercial organizations may keep your material for up to a year, while others have lost original slides (both particularly true of foreign based companies). Also, if the original is gone, how do you respond to other inquiries for the same material? (If you retain the right to make subsequent deals with any of your photographs, you can do this)? Anyway, my experience has been that 90% of the time a duplicate slide can be produced that is superior to the original in both contrast and in highlighting cloud details, desirable for commercial printing. Also, you could send several recent exposures of the same slide, just to give the requester a choice for his specific need.

(c) It is always desirable to have a prior, written understanding with a publisher or television/movie producer on use of your photography. Frequently, I have received calls from editors in a great rush to secure pictures. I try to be cooperative and send slides ASAP but follow up with a written agreement for their signature, leaving a space for entry, by them, of a phone-approved payment. The agreement can be written to preclude authorization of their publishing/showing your material until you've received a signed commitment. Your counter-signature and return of a duplicate copy would then let them proceed. The publisher or producer should appreciate a business-like approach and early clarification on this subject. It's just an organized form of "better communication" and most established media companies aren't out to rip you off. Although any agreement you devise can probably be taken apart by any company lawyer, leaving you out in the cold, this isn't likely. These sources are dependent on good material and if they understand that you're a dedicated storm photographer, they're apt to seek out your material again in the future. After taking reasonable precautions, trust the party at the other end of the line. Every business venture entails some risk.

Finally, if any of you have complaints, or commendations, about anyone with whom you've done business, let ST know and it will be published. Your fellow storm photographers would like to benefit from your experience. That's what a newsletter is for -- "news".

#### V. CAMERA TIPS

#### VI. TRAVEL TIPS

#### VII. FEATURE #1

The Medicine Lodge Tornadoes, May 17, 1983  
By Barbara White

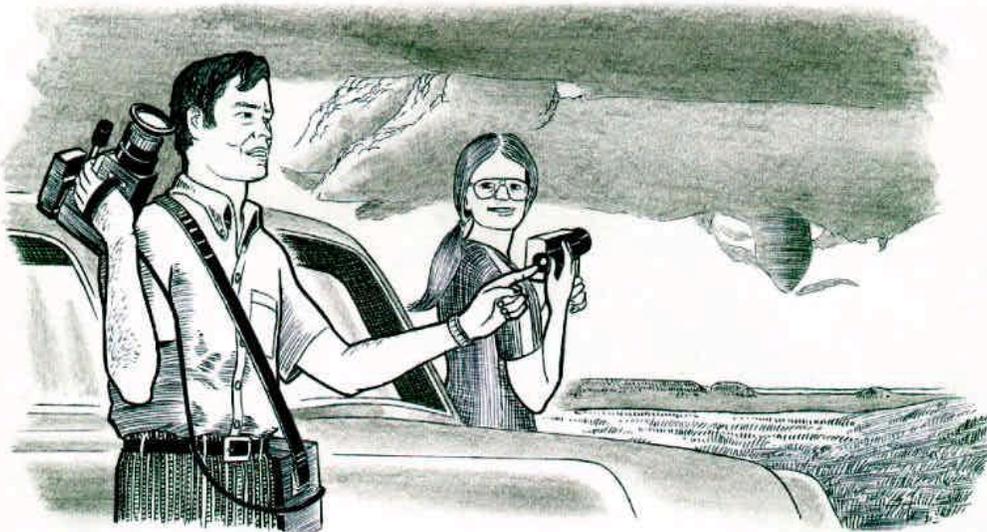
(Chase team - Barbara White and Jim Leonard)

This day started in Wichita Falls, Texas. At 10:30 AM CDT, we went to the local National Weather Service office and looked at the surface map and upper air progs. Since the best upper level diffluence was over northern Oklahoma and southern Kansas, it was decided to head in that direction. From Wichita Falls, we drove west on US 287 to Vernon. At 12:15 PM, towering cumulus and an anvil were sighted to the north. Indeed, all the clouds in that quadrant looked increasingly convective. However, Jim noted that these storms were too far ahead of the boundary to be the 'choice' ones we were seeking. He said he'd been fooled by similar activity in previous years, so we continued north toward Kansas. At 12:45, we turned north on US 183 and headed toward Woodward. The cumulus to our south and west had not yet broken through the inversion.

By 3:30 PM CDT, a tornado watch was issued for northwestern Oklahoma and south-central Kansas. The watch extended from a line north of Elk City and west of Guthrie, Oklahoma. Also, radar indicated a line of heavy thunderstorms over central Kansas. By 3:27 PM, we noticed hard towers going up to the northwest, apparently on a dry-line boundary. After reaching Woodward, we turned east on State Road 15. At this time, the towers to the west and northwest were having a wind shear problem, because upper winds were too strong (too much of a good thing) and wouldn't let the towers build vertically. The convective

cumulus cores were literally being blown apart. Thoroughly disgusted with this situation, we noticed a line of mid-level moisture to the northeast. That moist band appeared to be feeding into a storm near the Kansas border, so we drove north on US 281 to investigate. Our closer approach revealed several inflow bands leading into the storm, which was becoming visible to the northwest. There was a lot of cloud to cloud lightning, with hard towers to the northwest.

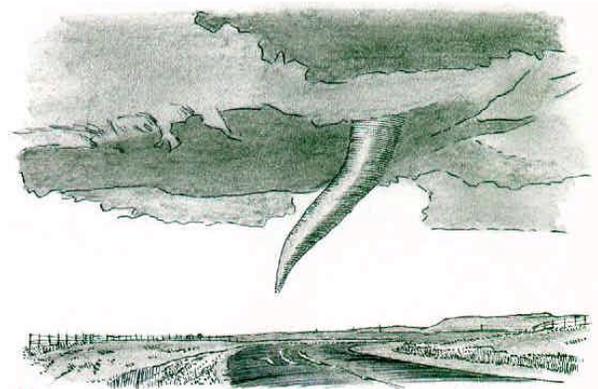
By 5:45 PM, we could see the rainfree base to the northwest in Barber County, Kansas. Reaching Hardtner, we turned west on State Road 2 and headed toward the rainfree base on the southwest flank of this storm. We made a photographic stop about five miles west of Hardtner, where we watched the development of a mesocyclone for about 15 minutes.



We then continued toward the storm on State Road 2 -- and, suddenly, the pavement turned to dirt! There was no choice but to go back east to US 281 and then north to US 160, to get ahead of the storm. While going north on US 281, a nice wall cloud formed -- then hills were between us and the mesocyclone, making it difficult to film the wall. However, we now knew it was just a matter of time before we'd see the big one.

At 6:40 PM, we reached Medicine Lodge and turned west on US 160, encountering some heavy rain. We had planned to stay on US 160, but I noticed a road which led south to the rain-free base. Although an unmarked road, not listed on the map, we quickly chose to follow it and within minutes a tornado began forming to the west! We stopped to film as it came all the way down (along with some small hail on us). As the rain on us increased heavily, we moved closer toward the rain-free base. The tornado lifted within a half minute after touching down but remained halfway down for several more minutes, as another funnel developed on the north side of the wall cloud. The two funnels circulated around

one another for about thirty seconds. We stopped again under the southeast, edge of the mesocyclone, which was rainfree at that time and continued filming the tornado, which was now to our northwest. While filming, Jim mentioned hearing a lot of wind noise in the field immediately northwest of us. Then, he saw rotation overhead! We both looked up and, to our surprise saw a tornado forming almost overhead but slightly to the northwest. We continued filming (8mm and videotape), as it organized rapidly. Jim saw some debris fly up briefly in the field to the northwest. The funnel was tilted to the south, and I was concerned for a minute that the counter-clockwise circulation would



tilt it in our direction, since we were a little southeast of it. However, it remained aloft as it passed by and moved off slowly to the northeast. Then, while the tornado was about three miles north, it became well organized and came all the way down to the ground. It was a very smooth tube-type vortex and was on the ground for about thirty seconds. Thereafter, it remained three-fourths of the way down for about three minutes. After it lifted, the entire thunderstorm began visibly to weaken.

On returning north to US 160, we back-tracked toward Medicine Lodge. Noticing some hard towers to the southeast, we decided to check these out. While on US 160, we filmed a couple of small funnels hanging from a very weak looking flanking line, extending from a thunderstorm several miles further east, but with little or no significant towers immediately overhead. By the time we reached State Road 179, it was too dark to continue, so we turned back to Oklahoma City.

Overall, it was a very good chase, and the tornado sound was very interesting. It seemed most like the sound of rushing water, such as a distant waterfall. I hope in some future year to get the chance to hear a mile wide tornado."

Editor's note: Fittingly this tornado, the only good one seen after two frustrating weeks of chasing, occurred on Barbara's last chase day, before she had to return home. Something like the storm chasers equivalent of the "US Cavalry arriving in the nick of time."

## VII. FEATURE #2

### ARES Match the Skies (Adapted from an article by Bob Wieland, Associated Press Writer

DALLAS -- Dave Martin spends tornado season watching for tornadoes and issuing warnings. Charles Byars oversees emergency preparations in the northern half of Texas for the amateur Radio Emergency Service. "Our people are redoubling their efforts this year," he says. Byars operates the 140-county northern Texas section of ARES, a nationwide organization of 160,000 amateur radio operators -- 1,600 of whom are in Texas. During tornado warnings, Byars and other volunteers of ARES operate a communications network called "Skywarn," that works closely with the weather service.

ARES provides a crucial communications network, during times when normal communications channels are lost. In 1979, it was ARES skywarn spotters who first saw a massive tornado forming on the western edge of Wichita Falls. Word was relayed to the National Weather Service, which confirmed the storm on radar, and soon ARES was broadcasting word of the twister. Forty-five people died, 500 were injured and \$250 million in property was damaged or destroyed but, the early warning still was credited with minimizing the devastation.

It was the first time the ARES system had been tested. Since then, the group has signed a formal cooperative agreement with the National Weather Service to coordinate Skywarn spotters with meteorologists, whose radar is often not specific enough to detect newly formed tornadoes.

In 1982, a Bonham police officer spotted a twister moving toward Paris. The ARES network and the weather service were able to track the twister well before it touched down. "We gave the people of Paris about 40 minutes lead time," Martin reports. "But that's pretty unusual. In Wichita Falls, they had maybe 20 minutes warning. The ones that are hard to warn for are the small, weak tornadoes. Usually, a few minutes warning is the best we can do."

After the Wichita Falls and Paris tornadoes hit, ARES provided the "only link with the outside world." Byars: "Our purpose is to provide emergency communications in time of disaster of any type. ... Any time there is a disaster, normal communications are usually interrupted. ARES units move in to fill the gap."

The amateur radio operators, who provide their own equipment, work closely with law enforcement, agencies, the Red Cross, county and civil defense officials and public utilities. ARES even relayed messages to relatives outside tornado areas. Byars: "Radio operators, who take part in these activities, are the most highly trained weather spotters in our community."

A final note from the Editor: Several of Storm Track's new readers have indicated enthusiasm about chasing tornadoes. I appreciate that many of you are interested in contacting others of similar persuasion, especially when you thought you were the only ones to have this kind of interest. However, Storm Track was not conceived of and has not been published over the years to show readers how to chase. Clues pop up naturally here or there, but it is mainly for and about people who are already chasers, or who are interested in storms and the unique personal encounters that others have had with them. Most of the chasers that I know have already done their homework and driven tens of thousands of miles over many years (or "paid their dues," like Chuck Doswell likes to say). They know what they're about. The Editor of ST can help put you in touch with other experienced chasers, but it is not his intent to give the reader a short course in "How to Kill Yourself!" Storm chasing is dangerous, the more so to those who seek short-cuts in how to do it. ST's Editor does encourage the serious enthusiast to do your homework: Visit a library or the local National Weather Service office for weather information; subscribe to Weatherwise; or join the American Meteorological Society and receive a monthly magazine, Bulletin of the American Meteorological Society (with some technical articles and many ads for good reference books). Especially recommended are AMS copies of pre-prints from biannual Local Severe Storm Conferences. With such knowledge acquired on your own, you'll be a better and safer chaser, ready to take those great pictures or assist your community in spotting and reporting severe weather. Good luck!