The Pileup
Newsletter of the CDXA

The Carolina DX Association

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2003 NORTH CAROLINA QSO PARTY REPORT

Ron Bailey, AA4S/m

In 2002 the Forsyth Amateur Radio Club did an excellent job of running the NCQP (their first time as sponsor) and worked hard to promote this year's event on February 23-24. As a result, activity seemed to be up and, indeed, 97 of the state's 100 counties were activated. The "Party" ran from noon Sunday until 10:00 p.m.

My performance last year resulted in a very distant third place finish in the "In-state, Mobile" category as I activated 13 counties from Watauga through Clay. Unfortunately, I had spent too much time driving while not operating and missed the turn which would have put me in Cherokee County by the end of the contest. This year I was determined not to repeat such embarrassment. The plan was to begin in Cherokee (which counts as an added bonus for participants) and proceed through Clay, Macon, Jackson, etc. finishing up in McDowell.

To maximize flexibility in an effort to improve my score this year, Hamstick antennas for 15, 20, and 40 meters in addition to a mag-mounted ten meter vertical were secured on my 1993 Chevy S-10 Blazer. An 80 meter Hamstick was also on board for evening use.

My 706MkIIG was connected to an Alpha-Delta 4-position antenna switch mounted on a board positioned between the passenger's door arm rest and the center console. A Radio Shack tape recorder and a Vibroplex key paddle were also mounted on the board. Enough cassette tapes to record 10 hours of operation were on hand as was a clipboard with paper log sheets for use while not in motion.

To make things more interesting and to help maximize my score, Bill Fisher, W4GRW, and his son Josh, KG4EGC, volunteered to run in their vehicle through some of the same counties with me. They would also be able to provide assistance if I had trouble. Using the club call of the Carolina Contest Group, NC4CQ/m, they would operate SSB while I concentrated mostly on CW (80% as it turned out).

Sunday morning of the contest I met them on Rt. 74 By-pass just west of Shelby at 7:30 a.m. We drove the 187 miles

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CDXA PacketCluster & Other Communication Systems		
W4DXA (11 mi. NNE of Mooresville)	144.93 MHz (1200 bits/second)	441.00 MHz (9600 bits/second)
K4MD Charlotte, NC	144.91 MHz (1200 bits/second)	441.075 MHz (9600 bits/second)
Digipeater near Wingate, NC	144.91 MHz (DXWIN)	
CDXA Repeater 147.18 MHz (+600)	W4DXA, Near Fort Mill, SC	
World Wide Web Homepage	www.cdxa.org	
Wednesday Luncheon (11:30 AM)	Shoney's, 355 Woodlawn Road, Charlotte, NC (704-525-4395)	

(Continued from page 1)

to Cherokee county and were ready to go by the start at 12:00 noon. The intent was to spend 50 minutes in each county unless the QSO rate dictated either staying longer or not so long. I had a McDonald's hot apple pie 20 minutes before the contest but no other food or drink the entire time. There was a restroom stop in Haywood County and a gas/restroom stop in Yancey.

The choice of starting in Cherokee turned out to be productive as 59 QSOs were logged in 56 minutes. Forty and 20 meters were the best bands throughout the contest. Ten and 15 yielded little and I never could establish a run on 80 even though several strong signals were heard.

We stayed pretty much within the time schedule except when I missed my turn (sound familiar?) onto 19/23 north off Rt. 40 in Asheville. I ended up having to take Rt. 70 to Rt. 80 north from McDowell into Yancey. Little did I know Rt. 80 went over 6,684 foot-high Mt. Mitchell! By now it was pitch dark. No other cars were on the road which was so winding I was looking at my own tail lights most of the time. There I was, trying to steer with one hand while working 3 and 4 stations a minute at 32 wpm with the other, and wondering, "Where will I be when, or if, this road ever ends?".

As luck would have it I must have had a great signal from up there as I ran 166 forty meter CW QSOs in three hours. The road finally came out on Rt. 19E at a gas station which was still open (whew!) So, not much lost as a result of the missed turn except that I ran McDowell, Yancey, Mitchell, and Madison in the reverse order of what I had intended. Plus, I was able to slip into two additional counties (Henderson and Polk) in the last hour on Rt. 26 south on the way home.

The final 10-hour tally was 489 QSOs with 32 counties and 35 out-of-state multipliers worked while activating 13 counties. This represents a 240% improvement over last year's score and, hopefully, a higher placement in the standings. The total round trip came to 522 miles.

Bill and Josh left me in McDowell about the time I was getting lost, HI! Josh is a senior in high school and had to be home in Vale at a reasonable hour, but they had been a tremendous help by giving me several county multipliers I would not have earned otherwise. They both thoroughly enjoyed the experience making 127 QSOs with 45 multipliers while activating 11 counties. The weather was perfect and scenery was especially beautiful along 23/441 with the sun lighting the snow-capped mountains.

Thanks to all who supported my effort by giving me contacts and to my fellow Carolina DX Association members who supported the QSO Party by activating several counties. K4DXA, AA4ZZ, N4PQX, AD4IE, K4CEB, and K8YC are in my log. Bill Turner, W4WNT, even braved the race traffic around Rockingham to activate some counties. Hope everyone had fun; I did and can't wait until next year! —Very 73, Ron, AA4S.

The Pileup
Official Newsletter of the Carolina DX Association

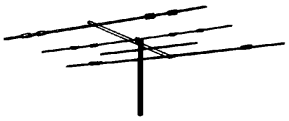
Published monthly 10 times per year, excluding the months of June and December.

The purpose of the association is to secure for the members the pleasures and benefits of the association of persons having a common interest in Amateur Radio.

Members of the CDXA shall adhere to "The Amateur's Code" as published from time to time in *The ARRL Handbook for Radio Amateurs*, and shall consist of those valid licensed amateur operators having an interest in promoting amateur radio. Long distance communications (DX) is of special interest to members of the association, but said interest is not a requirement of membership.

Dues are $30 per year for those using the PacketCluster maintained by the Association, $15 otherwise, payable each January. Dues are payable by check to the Secretary/ Treasurer:

Jim Miller, K4SQR
11600 Hilda Court
Charlotte, NC 28226



ARRL International DX –SSB Contest

Seven members of CDXA participated in the ARRL's International DX Contest hoping to win a jacket embroidered with the CDXA logo. Tom Wright, KT4HN came out on top with 495,405 points.

Below are the results of all participants who submitted scores to ARRL on behalf of CDXA.

Tom Wright	KT4HN	495,405
Bob Burton	N4PQX	335,340
Henry Elwell	N4UH	220,248
John Scott	K8YC	170,568
Roy Lincoln	WA4DOU	124,848
Ben Wasilauskas	K4GHS	44,421
Don Brannan	K4SLC	30,000

Why Do You Contest?

By Ward Silver, N0AX

(This piece, prepared by Ward Silver, appeared in the 26 February 2003 issue of the ARRL Contest Rate Sheet which Ward edits. It is reprinted with permission of ARRL. –The Editor)

This is a fun question. I'm not talking about, "What is it with contesters?", often asked in frustration by someone feeling a bit crowded. But rather, about what draws you to the radio—weekend after weekend—to holler into the microphone or pound on the keyboard in pursuit of . . . what?

Let's see—there are the competitors that fight for a spot at the lofty top. They want The Plaque that says "Ultimate Champion". At the very least they want to be in The Box—one of the Top Ten. They plan, they prepare, they strategize, they fret, they fly great distances, they push the envelope. And, by golly, they DO appear in the boxes time after time after time with excellent scores that just seem to get higher every year. These folks are after RATE and MULTS and SCORE and lots of it. Their first question on Monday morning is, "When's the next contest?"

There are the "DXers" that use contests as a vehicle to make QSOs that count for any number of awards—DXCC, WAZ, WAS, IOTA, you name it. They don't mind sitting in a screaming packet pileup for fifteen minutes, because the station in the Italian Virgin Islands is a New One! Many QRP operators LOVE contests for this reason—the Big Guns are out in force looking for Every Single QSO, including that puny, weak cross-continental contact on 80 meters the QRPer needs for 5BWAS. The band-mode collector, the Medium Pistol, the wallpaper chaser—all keep the bands busy.

Casual operators abound. A few hours here, an hour there, they like finding the bands packed and enjoy an afternoon of radio slam dancing. Then the dinner bell rings, they're probably through, but in the meantime a hundred or more QSOs went in the logs of other competitors. It's an operational breath of fresh air that fits in nicely with the local club repeater, the weekly emergency services net, and the schedule with Fred in Arizona on Thursday afternoons.

Newly licensed operators are continually discovering the sport and working up the nerve to push the mike button and call Mr. Big Gun, 40-over-9; 200 per hour. Yikes! He answered! It's like getting a handshake from Tiger Woods. Send a QSL? You bet! He's where? I talked to what? There may be only ten QSOs in that contest log, but you can bet that each one was an accomplishment.

The strange thing about radio contesting is. . . .those operators are all in there TOGETHER. No other sport puts all levels of competitors in the same arena at the same time and requires them to cooperate. In fact, in no other sport are the competitors measured by their ability to cooperate. To be sure, there is competitive pressure—just try to get a frequency within 20 kHz of the band edge—but the competition is to see who can cooperate the best, the fastest, the mostest. Weird, huh?

No matter why you do it—as a Major Dude or on the What-Do-I-Say-Now level—your presence is required and accepted. I have been all of the above kinds of contester (although my plaques are few) and have never been made to feel anything but welcome on the air. I admit, some of the welcoming takes place in about 10 microseconds, but by golly, my QSOs add to a score just as much as somebody in the Hall of Fame, and we all put our antennas together one element at a time.

When I was helping to host the first WRTC back in 1990 and all these famous callsigns were showing up at the various functions, my wife asked me how long I'd known these guys. My instant answer was, "Years!" Even though, on reflection, our cumulative interaction probably totaled no more than five minutes and our scores couldn't have been farther apart, I felt like each one was a trusted friend. Hey, they're contesters, right? I guess that's why I contest. –73, Ward, N0AX

Welcome, New Editorial Contributor

CDXA has a plethora of experienced amateur radio operators covering the waterfront of radio technology. This month, your editor called upon Roger Webb, W4MW, to provide us his insight into the world of VHF propagation. I knew Roger was "into" VHF work when I heard him on the CDXA repeater during the outstanding VHF openings in the last quarter of 2001 calling out Europeans as they popped out of the ether. Roger provides us observations on Sporadic E propagation on 6 meters starting on page 4.

What can you offer us regarding your pet topics?

DO YOU KNOW WHY ITS CALLED THE "E" LAYER?
Observations on Sporadic E at 50 MHz.

by Roger Webb, W4MW

The summer "E Season" is upon us again, but do you know why it is called the "E" Layer?" Ever wonder about the location of the "A", "B" "C" and "G" Layers? Read on for answers to these and other questions.

E skip propagates signals from about 500 to 1500 miles (approximately 800 to 2400 km) depending upon the electron density and radio frequency. In early days of radio based on the distances that signals would travel during the "E skip", it was estimated that the E layer resides between about 50 to 100 miles above the earth's surface. This was later confirmed with measurements from ionosondes (vertical incidence sounders) placing the E layer at an altitude of about 65 to 75 miles.

In my experience on 6 meters the most typical distance for a single hop places the sweet spot of the opening footprint at 1,000 to 1,200 miles. Ted Goldthorpe, W4VHF, showed me that as the E-skip distance shortens (due to a greater electron density) so that stations at about 500 miles are appearing on 6 meters, then the opportunity for an opening on 2 meters is very likely. Some DX locations are very difficult to work because they are too far for a single hop, but too close for a double hop. Making contacts in these intermediate regions requires a greater electron density in the E-cloud. I have noticed as some openings begin and close that propagation will extend and those stations near the maximum distance appear. I think this is due to changes in the electron density affecting the altitude of the ionized patch as it begins to form or dissipate. Another factor is that the ionized patches ("E-cloud") can change size and/or migrate. As a result, the opening appears to move from region to region.

The higher the frequency the more limited the opening footprint can become. The opening can be favoring one station and another ham as close as 10 miles away can be out of the opening. I have seen many openings (even on a mountaintop) where stations would be in the opening, but I could not hear the DX stations. The DX Packet Cluster has been an invaluable tool for me to complete DXCC on 6 meters. I would see the rare countries spotted and wait for the opening to extend to include me. Patience and the ability to endure hours of static will pay off for those who are persistent operators.

Part of the exchange in a VHF contact includes the "Grid Locators" based on a specific 1x2 degree location. Plotting these grids after one multi-E opening to Europe I noticed that the opening footprint was shaped in an elongated oval. Emil Pocock, W3EP, was the first to tell me that the geometry of the propagation, when reflected from the sky back to the earth would produce an opening footprint that would be laid out in such an oval or even a cone shape. I find when multiple hops occur on 6 meters that the opening footprint tends to be near a multiple of the maximum single hop distance (multiples of 1200 to 1500 miles). Again, the intermediate distances are difficult to work being too close or too far to be in the opening footprint.

What causes E Skip? I don't know and would love to hear your theories. I have heard many ideas set forth such as weather, heat, thunderstorms, wind shear, ionized particles from meteors, solar radiation, soft x-rays and ultraviolet rays. It is still not known what causes E skip.

What we know is that E skip can occur anywhere on earth at any time of day, any day of the year and any time during the solar cycle. What we know is that E skip season peaks during June and July with a minor peak in December. E skip is mostly a daytime event. It is best and most frequent at "mid latitudes" with the greatest occurrences in the Pacific off the coast of Japan and the least occurrences along the magnetic equator.

E skip openings can link up providing some exciting and exotic DX openings. Roger Burt, N4ZC, told me that he has worked the Middle East via multi Es on 10 meters. The most distant station I have heard on 6 meter multi E skip was SV1OE during 1989 and again in 2002. The distance to SV from W4 requires the linking of 4 multi-Es hops. In eastern NC, a W4 station worked JY via multi-E skip on 6 meters. Another rare 6 meter opening was from JA to W0 area. During the June VHF Contest in 2001 with AA4ZZ mountaintoppers, I witnessed a European opening where we worked over 60 European DX stations through the expert CW contest skill with Ron Bailey, AA4S, at the key. This event placed us on the top of the Multi-Op Limited Category for the contest that year. Long haul DX does appear on 6 meters via

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multi-Es.

The DX Packet Cluster will have good VHF spots from time to time. In addition a website "50 MHz DX PropLogger" (http://dxworld.com/50prop.html) is a good tool to use for DX spots. I monitor (scan) certain frequencies to alert me for potential European openings. Such are the 48 MHz TV Carrier frequencies at 48.242 (CT) and 48.250 (EA). These are QRO video carriers and typically the precursor of most 50 MHz Trans-Atlantic openings. In addition, I scan certain Western European 6 meter beacon frequencies at 50.020, 50.030, 50.032, 50.035 and 50.063.

In my experience Europe can appear as early as 6 AM EDT, yet the chance of an opening to Europe after 7 PM EDT is rare. Only one time have I ever heard Europe after 8 PM local time. During the summer of 2002 CT1DYX appeared late in the afternoon and he was still coming in at 11:30 PM when I turned the radio off and went to bed (no other European appeared during that opening). Europe typically appears between 9 AM and 11 AM local time with another peak opening period starting about 3 PM to 6 PM local time. I have heard Europe on 6 meters via multi-Es as early as the last week in May and as late as mid August. OX stations normally appear in the late afternoon and early evening. Stations in western Africa (CN, 5T5, EA8, EA9) typically appear in the 3 PM to 6 PM time frame. Central America, the Caribbean and northern South America can appear at any time. KH6 and KL7 typically appear around 9:00 to 9:30 PM local time. These long multi-Es links are usually short lived and if you are lucky enough to be in front of your radio when they appear you can work'em, too. It doesn't take a lot of power either. Ted Goldthorpe, W4VHF, worked DXCC and WAS on 6 meters with only 100 watts and a 5 element beam.

Looking back over the log books of 133 countries I've worked on 6 meters, I worked 82 countries via E skip with another 9 countries worked on F layer that could be worked with multi-E skip. In the era prior to cycle 22 there were a limited number of countries which allowed operation on 6 meters. During the last decade many more countries, especially in Europe, now allow operation on 6 meters. This increase in activity provides more opportunities for working VHF DX. I expect this coming summer will provide a few good openings from the Mid-Atlantic Region to Europe and northwest Africa.

Even though the solar cycle is winding down, the opportunity to work DX on 6m continues via multi-Es openings. Many experienced hams have told me that the best E skip and the most exotic E skip openings are during the summer of the years near the solar minimum. I remember hearing KL7 appear via multi-Es during 1973. Cycle 21 started June 1976 which was the year of the solar minimum. Cycle 22 started in September 1986 and I remember working KH6IAA via multi-Es during the June Contest in 1986. Cycle 23 began in May 1996 which was the last solar minimum. By far the most exotic E skip seasons on 6 meters were during the summers of 1995 and 1996 being the most recent solar minimum. Almost daily openings occurred to Europe. During the summer of 1995, I worked 45 countries on 6 meters. I remember one July day in 1995 the band was open to Europe for 14 hours from providing contacts from OY to S5.

The solar flux in March 2003 has dropped below 100 and we are experiencing the lowest SFI (solar flux index) numbers since May 1998. If interested in working 6 meter DX, the next solar minimum is expected to occur in 2006. I expect we will have some very good multi-Es openings during the summers from now through 2007.

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Now, what you've been waiting for. Why it is called the E-Layer? And, do you know where the A, B, C and G layers reside? This story was told to me by Emil Pocock, W3EP. During the early days of radio, the pioneers of our hobby noticed from time to time, out of the ether, signals would appear at great distances. Knowing that this propagation was not typical gave rise to the theory that some "electrostatic flux" in the atmosphere was reflecting these signals back to earth. They were unaware of the ionosphere and its properties. The "Electrostatic Layer" abbreviated to "E Layer" (obviously "E" for Electrostatic) was applied to this phenomenon. The E layer was the first named layer of the ionosphere. The discovery of a skip layer in the ionosphere, higher than the E layer, providing more distant contacts was subsequently labeled the "F" layer. Later the layer attributed to the daytime absorption of low frequency signals, lower than the E Layer, was designated the "D" layer. There are no A, B, C or G layers.

Acknowledgments to W3EP, W4VHF, N4ZC, W4AAH, JA1VOK, K1SIX, WA5IYX and WB4UJH for our many discussions over the years. –Roger Webb, W4MW

The Back Page

It must be spring. My eyes are being irritated by all the airborne pollen. Yet, it's not too hot to get some of that antenna work done. Get your plans underway. If you need some help, let us know. We have some ground crew and I hope there are still a few climbers amongst us.

Going to **DAYTON** this year? Your editor is *finally* making the trip this year after being told back in 1979 that no well intentioned HAM would ever miss Dayton. Hope to see you there. It's not too late.

Coming **hamfests**.....

13 April Raleigh Amateur Radio Society (See http://www.rars.org/hamfest)
19 April Catawba Valley Hamfest (Morganton, NC) (See http://cvhamfest.org)

Contests coming up....(a sampling)

Dates	Contest	Comments
April 12-13	QRP ARCI Spring QSOP	Page 97, April QST for details
April 12-13	Japan Int'l DX Contest	Page 97, April QST for details
April 19-20	Michigan QSO Party	Page 98, April QST (Will AA4R be QSOing?)
April 19-20	Ontario QSO Party	Page 98, April QST
April 26-27	Florida QSO Party	Page 98, April QST
April 26-27	Nebraska QSO Party	Page 98, April QST
May 24-25	CQWW WPX - CW	Page 36, December 2002 CQ

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First Class Mail

See something wrong with your address label? Notify K4SQR at once, please.