



Bulletin



April 2020

From the Prez



Dick K5TF

As we do our individual parts during this difficult time to minimize our exposure to, and potential spread of the coronavirus, the Southeastern DX Club will also by not coming together again this month and possibly even for the next few months. Your officers are discussing alternative ways for us to enjoy each other's company and share our latest DXing experiences, as well as hear from others who would normally speak to us from the podium of Piedmont Hospital's Rich Auditorium. We have also discussed the upcoming election of officers for the 2020-21 club year and are of the unanimous opinion that the SEDXC would be best served at this time with your current slate of officers remaining in place until such time that we again begin meeting on a normal schedule, however long that might be.

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This Month's Meeting

The meeting for April has been **cancelled**.

VP's Corner



Mike ND4V

I hope all SEDXC members and their families are healthy and enjoying/surviving the stay at home routine.

It is looking like we will be social distancing for a while. If you have a program or idea that is suited to a Zoom style meeting, let's hear about it. Several of us have participated in meetings via Zoom and it is a fun kind of way to get together! I haven't experienced a virtual meeting where a program or slide show was presented, but it surely must be possible.

Six-meter season is just around the corner. I am hoping to snag a few new Eastern European countries and maybe a JA this season.

I commend the Georgia QSO Party organizers for modifying the event to be Saturday only with no Rovers. If you are in one of the counties where there normally isn't a lot of activity, I hope you were active. It is fun being the hunted one for a day!

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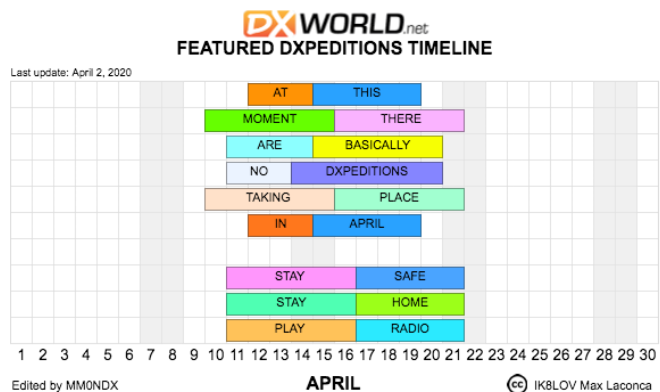
25 Years Ago in SEDXC

From the Prez

Unless there are objections, we remain your elected officers to serve you and this outstanding club to which you belong.

73,

Dick K5TF❖



Contests Galore!

While major DXpeditions may be on hold, there are loads of operating events every month to keep us challenged and keep our skills sharp until (and even when) the DXpeditions start to ramp up. Check out

<http://www.arrl.org/files/file/Contest%20Corral/2020/April%202020%20Corral.pdf>

Get on the air!!

60 Meters – The Channel Band

With the low bands being more active due to lack of sunspots, it seems that DXpeditions are increasingly using 60 meters for digital contacts to give out ATNO's. The Southwest DX Club has a column in their February Newsletter about that club's activities. Read more at https://www.swodxa.org/wp-content/uploads/2020/01/Vol3_Issue3.pdf

Maybe time to try something new!

Around the Shack de N4GG/4



Static Discharge

[Upfront disclosure: Essay includes a somewhat wonky physics discussion]

Lightning protection and static discharge are related subjects. This column is in its third year and I have consciously avoided the subject of lightning protection. When it comes to protecting the gear in your shack, and other ancillary items like rotors, computers and transmission lines, there are multiple protection methods published and the methodologies vary widely. There are also myriad devices being sold that claim to provide "lightning protection." You would think, or hope, there is one "best way" to protect your station from a direct or nearby lightning strike, but there isn't.



Your station lightning protection scheme depends on your station design. You might have a single 144/432 ground plane on your chimney, or you might have a 100 foot tower 100 feet from your house. Those are different situations that require different mitigation techniques.

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SEDXC Chat Room: details on webpage

SEDXC Reflector: details on webpage

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VP Corner (cont.)

Did you see and comment on proposed rule removing the power limits on CB frequencies during the COVID outbreak. It went on to say that in order to accommodate the wider signals, the 10-meter band would be opened to CBRs. Had me going until I saw the effective date of the proposal – April 1.

QRU for this month. Stay safe, stay well, and good dx!

Mike ND4V❖

Treasurer's Journal

Balance on hand as of March 31: \$11232.

Please see DXpedition Funding Request for CYØC, Sable Island, at the end of the Bulletin. CYØ is #56 Worldwide. Some notables on this one: Led by WA4DAN, Murray; our own K4UEE, Bob; W4DKS, Dan; our IOTA Checkpoint; our friend Lou, N2TU, and other seasoned DXers.

Our officers have suggested \$250 donation to a very expensive outing. Your vote is needed! Because we are not having a physical meeting, **please email your vote for this request to k5tf58@Gmail.com by May 10.**

73 and stay safe,

Jeff K1ZN❖



Around the Shack (cont.)

I designed and built N4GG to survive a direct lightning hit on any of the antennas, and the design has passed the acid test. I had an 80 meter inverted-V take a direct strike some years ago, and everything in the shack, as well as the antenna switches outside survived without damage except of course the antenna. The antenna was vaporized. Fortunately, wire is cheap. N4GG is an all-wires-in-the-woods station; what works for me may not work for you – hence my reluctance to offer advice.

Static discharge is an easier subject to address. Static charge is a common occurrence on antennas and transmission lines, yet we may never be aware of it. Or, we may be VERY aware of it. I recall SEDXC members arriving, at night, at TI2N and setting up three K3s for an hour of operating before everyone went to bed. The next morning two of the three K3s had dead receivers. The antennas at TI2N were particularly prone to developing static charge, early K3s had nothing in the front-end design to prevent damage, and the rigs had been left connected to the antennas overnight (which is typical at most stations most of the time).

What makes an antenna “static prone?” All “open-feed” antennas *will* develop charge – the only question is how much charge and what we do (if anything) to drain it off. Open-feed antennas include dipoles, verticals, and Yagis that use a gamma match or dipole driven element. If unsure – open-feed antennas are anywhere an ohmmeter at the shack end of the transmission line reads an open circuit rather than a short or some low resistance. We really are talking about resistance here too, not impedance. Static charge is DC, not RF. Size matters too, of course. An 80 meter vertical will develop more static charge than a two meter ground plane.

To get an appreciation of the energy that can build up in an Antenna *System* it's of great importance to consider the type and length of the transmission line as well as the antenna. I can't stress this enough. The DC capacitance of RG-213 is 31 pF/foot. For RG-8X it's 26 pF/foot. At DC (not RF) a length of coax can be thought of – to a first order approximation – as, simply, a capacitor. 200 feet of RG-213 is a 6,200 pF (0.0062 uF) capacitor. For RG-8X that's 5,200 pF (0.0052 uF).

Without a static drain, static charge causes a small (well, usually small) current to flow into a coaxial cable capacitor and by doing so continually raises the voltage until something finally breaks down. When “something” breaks down the stored energy is released. I avoid math in this column where possible, but there is an important formula to help put this in perspective. The energy (Q) in a capacitor is $= \frac{1}{2} CV^2$. That's 0.5 times the capacitance times the voltage squared.



Let's look at an example. An un-terminated PL-259 at the end of a transmission line will arc-over somewhere around 10 KV. This number varies widely and depends on lots of things – but we need a number to help gauge what we are dealing with, so let's take 10 KV as a case in point. Remember, energy goes up as voltage squared. Every time we double the voltage on a capacitor, the stored energy goes up by a factor of four. 10,000 volts squared is 100,000,000 – starting to get the picture? The energy in 200 feet of RG-213 charged to 10 KV is 0.31 joules. Because most of us never work with joules, that might not sound like a lot, but it is. A PL-259 arc-over will make a loud SNAP and that's more than enough energy to fry the front end of a receiver lacking protection for such an event. Ever hear a linear amplifier high voltage supply arc-over? You will

never forget it – it sounds like a gun going off - **BANG!** The energy in an AL-1500 amp's HV capacitor bank is around 250 joules. 250 joules can easily kill you. There are bleeder resistors across HV capacitors for this reason (also to balance the voltage across capacitors in series).



Where does the charge come from that has a high potential to damage “something?” “Something” is whatever breaks down first. At times the atmosphere is charged (contains an electric field), particularly when a storm is nearby, and that charge gradient will produce a gradient on an antenna. Ever hear of Saint Elmo’s Fire (check Wiki)? When static charge results in a high voltage gradient on an antenna, or tower, or ship mast, there may be a discharge into the atmosphere, which presents itself as corona. Static charge can also arise from wind (TI2N) or snow. Ever drag your feet on a wool carpet in low humidity or rub a balloon on a wool sweater? Ever see a Vandergraaf generator in action? A Vandergraaf generator is a great example of the phenomenon we are talking about. At the base is usually a small battery. A 1.5 volt AAA cell is all that’s needed. The battery transfers a very small charge onto a moving belt and that charge is collected at the top in a capacity hat. With nothing to drain the charge, the voltage on the capacitor at the top just goes up and up and up, until something breaks down. Often what breaks down is the air surrounding the top of the generator.

Here is a Real-world Example I Hope You Never Repeat

I got very interested in 40 meter DXing while living in Orlando. Orlando is within the area known as the lightning capital of the US.

I had a 70 foot tower in those days and I decided I would mount a 33 foot tall (quarter wave on 40 meters) vertical at the top of the tower. The vertical was insulated from the rotor mast it was bolted to using PVC pipe sleeves. The tower and TH-6DXX at the top formed the “radials.” The top of the vertical was at 103 feet and made a great lightning rod. I took that antenna down in under a week, despite the fact that my signal on 40 was fantastic. Why? That antenna was dangerous. My first clue came standing near the tower with a storm nearby. I was hearing a buzzing sound that would increase in volume over a few seconds, then abruptly stop. Then build up, then stop again. Over and over. Looking up I saw St. Elmo’s Fire at the top of the vertical. St. Elmo’s Fire makes a buzzing sounds and a purple glow. Inside the shack, the PL-259 for that antenna was laying on the floor. Every few seconds it would arc-over. The arc discharged the antenna and coax, but it immediately started charging again. The buzz was the loudest just before the discharge arc. The antenna had no static drain and I could have added one, but I decided the capture area of that antenna, at that height, in Orlando, might destroy static discharge parts and it just wasn’t worth it. As an aside, I left the PL-259 for the TH6-DXX laying on the floor (shag rug – 1970s) once and when I returned there was a 4 inch diameter circle of charred rug around the connector. I’m assuming there was a fire retardant in the carpet that prevented the house from burning down. Those were the days before I learned how to protect against lightning and static charge by grounding the shack end of coax – always.

So, if you are still reading, how do we prevent static charge from causing damage? Well, by draining it to ground before it builds up. It’s simple. First, return the shell of PL-259s to ground. Second, drain the center conductor via an RF choke to ground or if you can’t do that, than use a resistor – something like a 100K two watt resistor – from the center conductor to ground. The resistor won’t conduct enough RF to matter, but it will drain DC current. The resistor or choke can be at the antenna, in the rig, or in a small box anywhere along the transmission line. Both wires of open wire line or ladder line should be grounded when not in use and both wires should have static drains which can save your receiver when the antenna is in use.

It's ironic that while vacuum tube rigs are relatively immune to static charge, they have internal static drains – typically in the form of an RF choke across the antenna connector. That choke isn't there as a static drain however, it's there in case the plate blocking capacitor fails. Such a failure places the rig's B+ on the antenna.

For three years I've avoided being critical of specific manufactures but I can't in good conscious not mention SteppIR at this point. SteppIR antennas will build up static charge three different ways - a trifecta of trouble. First, like any antenna, a SteppIR vertical will build static charge just by virtue of being in an atmospheric electric field. Next, moving a metal tape inside a fiberglass tube will generate charge – just like rubbing a wool sweater – THEY ARE THE SAME THING. Third, if you reduce the value of capacitance of a charged capacitor, the voltage across the capacitor goes up. It has to if you think about it. The amount of stored energy is constant, capacitance is going down, and so the voltage has to go up (see the formula above). A SteppIR element is a capacitor – the fiberglass tube is the capacitor's dielectric. Winding up the metal tape in a SteppIR antenna raises the static voltage on the tape! Fortunately, this is easy to fix – just add a static drain. From the factory, *SteppIR verticals have no internal static drain*. SteppIR Yagis may also have no static drain; I'm not as familiar with what's inside the Yagi EHUs as I am with the vertical EHUs, but I would guess they are the same. I added a 100K two watt resistor inside the EHU of a SteppIR "BigIR" vertical I owned for a brief time.

4U1UN came back on the air a few months ago and after 24 hours the receiver front end had fried. I dropped the licensee an email drawing his attention to the fact that someone had picked the worst possible antenna to place on top of the UN building (SteppIR vertical), hooked it to a long length of coax, and hooked that to the worst possible rig (which shall remain unidentified). I suggested that without a static drain he would be replacing the rig often; very often. It's telling it only took 24 hours (or less?) to happen the first time.

A factoid: At the base of AM broadcast towers you will always see a "doghouse." What's inside? Sometimes there are tuning components to match the mast to 50 ohms, and there is ALWAYS a large RF choke from the antenna mast to ground to drain off static charge.

Some Things to Think About

- Grounding antenna switches, or disconnecting, are all you need to deal with static charge (not lightning) when *not* operating, but what about when you *are* operating? Something needs to drain the static charge off the antenna when you are operating with an open-feed antenna, just like AM broadcast stations do. Add a static drain (RF choke or resistor) if there is no existing static drain on your open-feed antenna(s).
- An easy way to fry a receiver front-end is to take an open-feed antenna's PL-259 that's unconnected to anything and connect it to a radio. Any static charge that has built up has to go somewhere. Guess where. An example of this would be to take the PL-259 hooked to a SteppIR vertical and simply plug (or switch with a non-grounding switch) it into a radio. Momentarily grounding the center pin to the shell of the PL-259 before connecting it will discharge any built up static charge, solving the problem if there is no static drain.

Some antenna types:

<u>Prone to Charge</u>	<u>Not Prone</u>
Dipole	Folded dipole
Base-fed vertical	Shunt fed vertical
Inverted Vee	Inverted Vee Folded Dipole
Ground Plane	5/8 Wave Shunt Fed Ground Plane
J-Pole	
Yagi	
Dipole feed	Hairpin match – center grounded
Gamma Match	Tee match

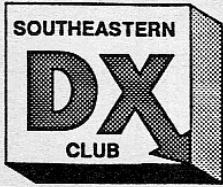
Note: Some voltage balun designs drain static, others do not. Current baluns do not drain static.

I'm sorry for the length of this month's column – I hope you found it worthwhile!

Hal N4GG/4❖

DXpedition Funding Request

Entity Name / Call Sign	CYØC
Web page	www.cy0dexpedition.net
Team leader / number of members:	<p>Team leader Murray Adams WA4DAN</p> <p>Team members: (10) Pat N2IEN, Lee WW2DX, Will AA4NC, Bill K5DHY, Dan W4DKS, John N8AA, Bob K4UEE, Lou N2TU, San K5YY, Murray WA4DAN</p> <p style="text-align: center;">Team member bios can be found at: http://cy0dexpedition.net/team.html</p>
Approx. Date and duration of Dxpediton	October 17-26, 2020. Set up beginning Oct. 17.
QSL manager / QSL route	Direct QSL Manager---WA4DAN OQRS/Bureau QSL Manager---K5DHY
Budget estimated for Dxpediton	\$60,000
Position on most wanted list:	#56 on ClubLog DXCC "most wanted" list
Landing permit/operating permission approved.	YES
Last time this entity was activated	2017
Typical interval between activations	3 Years
Anyone planning to activate this entity before your DXpedition	NO
Objective / Strategy	Minimum 50,000 QSOs, 10-160m CW, SSB, Digital
Callsign/Age of youngest Team member	WW2DX----46yrs.
SEDXC member initiating request	K4UEE
SEDXC member(s) participating	K4UEE
Funding amount requested	\$1000
Send Funds to:	WA4DAN-CBA address
SEDXC logo on QSL cards?	YES
SEDXC logo on web page?	YES
Additional comments:	If DXpedition is cancelled for any reason, SEDXC contribution will be returned!



SOUTHEASTERN DX CLUB W4NT

**THE
SOUTH'S
PREMIER
DX CLUB**

April 1995

NEXT MEETING TIME & LOCATION

Tuesday, April 18th, 7:30 PM, Old Hickory House in the Days Inn, Roswell Rd., just inside I-285.

VEEP BEEPS

by Dick Bentley, K2UFT, VP

PRESIDENT'S MESSAGE

-Delaine McCarthy, KM4FV, President

Hope you all had a great month! The weather has been great and everything is in beautiful bloom. Sorry about the pollen!

Pete Rhodes did a super job at the last meeting on Russia. You missed another good one if you weren't there.

Well, it will be after the fact when you get this newsletter, but I hope everyone of you attended the Ham Radio '95 Fest and DXPO. A lot of work has been put into this by many people and clubs. It is always good to hear positive comments by members of all clubs on the repeaters about a great endeavor for our hobby. This should be encouraged by us all.

We'll see you at the next meeting, April 18th. We will begin planning for a new slate of officers soon. Think about it, maybe it's your turn!

CUL, 73 Delaine - KM4FV

Shorty this month, headed out of town. Hope you all had a great experience at DXPO and HamRadio 95, looking forward to an "after action" report on both at our next meeting. Unless something more interesting materializes, April's program will be a short slide show from ZF1DX 160 Meter contest and a glimpse at Field Day, Cayman style - Hey Mon, dis bee de kay-mon.

See you in the pile ups!

-73 Dick, K2UFT

TREASURER'S REPORT

-de John Tramontanis, N4TOL

Balance 3/1/95 (Checkbook)	\$2,067.20
Income	
160 Plaques	80.00
Packet Cluster	18.00
SIG DXpedition	69.00
Membership	44.00
Raffle, shirts & pins	334.00
Total Income	<u>545.00</u>
Expenses:	
Newsletter (Mar)	102.62
Bank Charges	10.35
Total Expenses	<u>112.97</u>
Balance Checking 3/31/95	<u>\$2,499.23</u>

Of this ending balance, \$788.00 is earmarked for the cluster fund, resulting from voluntary contributions from the club membership at renewal time. The club is also holding \$800.00 for 160 meter award plaques.

- 73 de N4TOL John

HELP SEDXC! BE AN OFFICER!

The SEDXC Newsletter is published monthly by the Southeastern DX Club. All opinions expressed by the contributors do not necessarily reflect those of the editor, officers, or club. We welcome your opinion.

The Internet DX Mailing List -
Frequently Asked Questions (edited)

Comments or additions should be sent to:
lyndon@canada.netbistro.com

Last updated: February 19, 1995

1. Introduction

What is the Internet DX Mailing List?

1) It is an electronic mailing list dedicated to the discussion of Amateur Radio DXing. This is the place to exchange tips and techniques, discuss hardware (rigs, antennas, DSP add-ons), awards, DX related software, announce upcoming DXpeditions, etc. Anything and everything pertaining to DX is fair game, with the following exceptions:

A) Don't send requests for QSL info to the DX mailing list. You can obtain QSL information via e-mail by sending a message to qsl-info@aug3.augsburg.edu. Include in the message body the callsigns you want QSL information for - one callsign per line. This service is operated by Ray Rocker (W5QL). Please direct questions or comments to him at rrrocker@rock.b11.ingr.com.

B) Discussion about contests and contesting should be kept to a minimum. The CQ-Contest list already provides an excellent forum for contest related discussions. (To subscribe to CQ-Contest, send an e-mail request to cq-contest-request@tgv.com)

2. Subscribing, Unsubscribing, and Administrivia

How do I subscribe to the list?

To subscribe, send an e-mail message to dx-request@unbc.edu with the following request in the message body: subscribe DX

How do I unsubscribe from the list?

To unsubscribe, send an e-mail message to dx-request@unbc.edu with the following request in the message body: unsubscribe DX

Mail from the list might not cease immediately after you unsubscribe. It may take a few days.

How do I send a message to the list?

It's easy! Just send an e-mail message to: dx@unbc.edu. Your message will be automatically resent to all the mailing list subscribers. Depending on the load on our mail system this could take anywhere from a few minutes to several hours. If you don't see your message

within a day or so, send a message to dx-request@unbc.edu (NOT the general submission address) and I will look into the problem.

Here are a few things to keep in mind when sending a message to the list. If everyone follows these guidelines it will help the list operate smoothly.

Make sure your subject line is appropriate. If a conversation wanders off the original topic, change the subject line to reflect the new line of discussion.

Proofread your message before sending it! Spelling mistakes and poor formatting do nothing to help you get your message across.

Keep it short! Many subscribers pay for their e-mail access.

Make sure there is something of value in each message you send to the list.

3. Other Related Internet Services

Where can I obtain back issues of the various DX bulletins?

An incomplete archive of DX related bulletins is available via anonymous FTP from ve7tcp.ampr.org/bulletins/. I add back issues as I come across them. Feel free to contact me if you can help fill in the holes. At some point I hope to set up a WAIS search index that will let you do keyword searches on the bulletins in the archive.

Where can I find out about current solar and propagation conditions?

One of the best sources is Cary Oler's Solar Terrestrial Dispatch. He provides both daily reviews of solar activity and a report of current solar conditions updated every three hours. Sites on the Internet can obtain these reports by fingering the following addresses:

solar@xi.uleth.ca (3-hourly report)

aurora@xi.uleth.ca (hourly auroral activity report)

Lyndon Nerenberg - VE7TCP -

lyndon@canada.netbistro.com

Editor's note: In addition to the DX and Contest Reflectors mentioned, there is also a 160M reflector at topband@frontier.net. I subscribe to all three and generally get around 50 to 60 pieces of mail a day! Not for the faint of heart! The information is generally very current and is a great way to contact many people around the world such as ON4UN! Surf the 'net!

MINUTES SEDXC MEETING 3/21/95

-Buddy Harrell, W4OUN, Sec.

The meeting was called to order by Delaine, KM4FV. There was an introduction of two visitors from JA-land and new member, Don. Visitors are always welcome.

Dave, K4JRB reminded all present that he needs the logs from the 160M contest. The race appears to be very tight for first place among clubs. Jim Stafford, W4QO, reported on HR95 and DXPO. Plans are still progressing well. Tickets for the Breakfast Banquet may be purchased from Jim. Some of the other key features of the upcoming event include the Forum Track, DX Row, and hospitality room on Saturday night. Ed Sleight, K4SB, discussed plans for Saturday night's hospitality suite. Nancy, NK4U still needs volunteers to help at the SEDXC booth on Saturday.

Congratulations to W8BLA, Vern, for first place World, low power, in the WPX contest. Also, Vern announced that he plans to be part of a Heard Island (VKØ) operation targeted for Jan. 97.

There was discussion of the motion concerning limiting attendance to the meetings by non-members. As part of the discussion, Ed Sleight presented his interpretation of the bylaws as they related to this particular issue. Several members present expressed their opinion that passage of the motion was not in the proper spirit of amateur radio or the club. The motion was voted down.

Pete, K4EWG, provided us with another interesting program concerning his activities in Russia. Pete will be returning to Siberia within the month (at least warm weather is on the way). We all wish Pete and his wife well in their endeavors.

73's and DX

Buddy/W4OUN

DX TIDBITS

-Rick, N4XMX

THE HUNT FOR CONWAY REEF

The last time Conway was up, I was a new ham with my 100 watts and a verticle antenna. I thought I had worked them on 20m phone near midnight. After the long

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FROM THE INTERNET

Problem logs:

Hi Guys. Every year I get logs with some of these problems. The biggest problem for US guys is the file name on disk. The eastern European countries are a problem with not giving breakdown on coversheet.

Some log headaches:

1. Guys who lump country and zone mults together.
2. Guys who give no QSO total.
3. Guys who multiply pts x z x dxcc.
4. Guys who think they are in the WPX contest!
5. 50% of disks which use the "unique" file name of CQWWSSB.BIN.
6. Guys who say "this is our first contest, but we don't know how to score the 4000 QSO's we made, let us know how we did." And it is a rare country!
7. Guys who send the .ALL or .band file from CT instead of the .BIN file.
8. etc. 73 bob (??)

wait for the cards, I recieved one of those NIL notes written on my card with my \$1 returned. It was a sad day. I have waited four long years for the return of Conway.

This was supposed to be a BIG three station, kilowatt operation with beams. Exactly the type of operation I like! Reminds me of the first class operation at AH1A a few years ago. At the end of the DXpedition, they were begging for contacts.

When they didn't show up on schedual, the anxiety increased. As everyone learned later, one of the boats capsized dumping substantial equipment in the drink. As it ended up, only on linear was working.

First morning I was at the radio 6:30 local to find that the best propagation was at 5:00 AM local! Next morning, I was ready. Up at 4:00 AM local. Nothing but static until I had to go to work. Got home, turned on radio, found them on 21.295, worked them on 21.300, 2 calls. Three hours later, I found them calling on 14.195, "CQ 14.200." Nobody was coming back to them. Naturally I couldn't let them call in vain.... 2 calls.

CW was another story. They zigged while I zagged. When they were on, I was at work, supper or whatever. Never did connect. BUT, after waiting for four years, I really didn't care... Have fun! It's only a hobby! Right.

-CU in the pileups...

-Rick, N4XMX

April 1995

SEDXC